

streamline

An apple a day: Dr. Eva Galvez on working with seasonal agricultural workers in Oregon

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

[Editor's Note: In 2015, Migrant Clinicians Network is celebrating its 30th year of working to create practical solutions at the intersection of poverty, migration, and health. To commemorate our 30th anniversary, we have launched 30 Clinicians Making a Difference, in which we celebrate the work of 30 individuals who have dedicated their lives to migrant health. The following two profiles are a part of this project. View all 30 profiles at www.migrantclinician.org/30-clinicians-making-a-difference.]

For Eva Galvez, MD, her work as a family physician with obstetrics at Virginia Garcia Memorial Health Center in Hillsboro, Oregon is not just a job. “When I see my patients, I see my family. I see my community,” she said. From her childhood in Oregon with seasonal agricultural worker parents, Dr. Galvez intimately understands the struggles and barriers her patients encounter. “Most of the patients that I see in my day-to-day practice are working in seasonal farm work, but are living in town,” she explained, as her parents had when she was a child. She finds her background makes her ideally suited for her position. “First of all, you have to understand the language. That’s key,” she said, explaining that most of her patient panel have their primary language as Spanish, in which Dr. Galvez is fluent. “Then also having an understanding of that cultural component, and having an understanding of those barriers,” solidifies the relationship between physician and patient, Dr. Galvez believes.

Early exposures to agricultural workers... and medicine

Dr. Galvez’s story starts with her parents. Her father immigrated to the US from Mexico with his family, before she was born. “Like most of the people coming to this country, there was a lot of economic hardship in his small town and he felt the economic need to look for work with the intent of hopefully improving the lives of his family back home,” Dr. Galvez explained. He eventually found work in the



apple and pear orchards in Oregon, where he met Dr. Galvez’s mother, his future wife. Dr. Galvez’s mother was born in the US to migratory agricultural worker parents. Dr. Galvez and her siblings were born and raised in the seasonal agricultural worker community where their parents continued to work.

At a young age, Dr. Galvez and her twin sister began volunteering at a local community health clinic where their aunt worked. At first, their volunteer work was focused on small tasks, like handing out snacks. But at the age of 11, Dr. Galvez and her sister were asked to interpret for doctors who were coming from medical school and interacting with patients, but had no Spanish language skills. They interpreted for two years, during which their passion for medical service grew. (Her sister, Olivia Galvez, also eventually became a physician.) “I realized at a really young age that I could be useful,” she said.

Return to Oregon

Dr. Galvez studied medicine in Washington State, and completed her residency at a community health center there, but she wished to return to Oregon. “My intent was to be closer to family,” she said.

“Before I even moved to Oregon, I already had my eye on Virginia Garcia. There was no other place I wanted to work,” she noted. Its mission to provide high-quality, comprehen-

sive medical care to the underserved, with an emphasis on migratory and seasonal agricultural workers, paralleled Dr. Galvez’s personal reasons for going into medicine.

She has now been working in Hillsboro, Oregon, one of Virginia Garcia’s five sites, for almost four years. Her patient panel is quite diverse in age and gender, she says, but most are Spanish-speaking agricultural workers.

“My patients are oftentimes not easy or straightforward. There are a lot of complexities in their lives because of all the barriers that they have: social barriers, economic barriers, language barriers,” she explained. “So it can be very challenging to try to address something like diabetes in 20 minutes.” She gave the example of a woman who came in the previous week with a work injury — but turned out to have uncontrolled diabetes as well. Such overlapping health issues are commonplace, she said. “But I have the advantage of seeing these patients time and time again,” because many are seasonal, but not migratory, agricultural workers. “It’s a long-term relationship that I build with them. With time, they have trust in me and I really get to know them.”

Ongoing struggles

Dr. Galvez has been pleased by the many changes she’s noticed in health care as a result of the Affordable Care Act. “Suddenly, I’m seeing more patients who are covered by insurance,” she said. “But, there [are] still huge numbers of people who are not insured, and that’s the undocumented population,” whom she regularly sees in her clinic.

Undocumented workers are often “working in really dangerous jobs where there are a lot of exposures to pesticides, to farm equipment; a lot of them have chronic health conditions, and because they’re undocumented, they can’t get insured, so we’re still providing that care, but if they had some type of insurance it would make their care even better,” she said.

Even those with insurance can have a

continued on page 3

Delivering new life and hopeful beginnings: A midwife's role in providing health care for migrant women

Kerry Brennan, Environmental and Occupational Health Program Associate, Migrant Clinicians Network

Megan Danielson, CNM, is not your typical nurse-midwife, because her patients are not the typical patients: They are mostly migratory agricultural workers. In addition to facing many barriers to care while migrating, pregnant migrant workers, once at their destination, may also encounter occupational hazards, like pesticides and chemicals, that are common to industries where migrant workers find jobs, like in the agricultural and service sectors. But Danielson is up to the task as a certified nurse-midwife at InterCare Community Health Network.

Early Inspiration

From a young age, Danielson understood the challenges facing migrant workers and their families. Growing up in rural Southwest Michigan, Danielson witnessed her mother's concern as a fourth grade teacher of migrant students who drifted in and out of the school system with each move. While Danielson would later dedicate her career to overcoming the barriers that migration presents to continuity of health care, the first barrier she encountered was continuity of education for migrant children. One summer, Danielson worked at a school for children of migrant workers. The goal of the program was to help the kids get caught up on the education they missed during the school year. At the intersection of poverty and migration, education is interrupted not only because migrant parents are moving in search of work, but also because migrant children frequently have to miss school to help their parents in the field, she said.

Danielson was further inspired by her high school Spanish teacher who volunteered as an interpreter at a local hospital. The teacher shared her stories and experiences with her students, which added a new dimension to Danielson's understanding of the unique struggles confronting migrants.

As a result of these early experiences, Danielson was moved to pursue Spanish in the Residential College at the University of Michigan. There, while taking a class on women's health, she was introduced to midwifery and to one of her role models, Joanne



Motifio Bailey, CNM. Bailey teaches women's health in the women's studies department at the University of Michigan and is also the director of the Nurse Midwifery Service for the University of Michigan Health System. Additionally, Bailey has worked as a health care volunteer throughout Central America, with a special focus on Honduras. Bailey's passion motivated Danielson to change her focus to women's studies, with the end goal of becoming a Spanish-speaking certified nurse-midwife. Danielson became a volunteer doula, offering pregnancy and labor support for low-income women who otherwise could not afford the services of a doula. She worked as the outreach nurse's assistant at a migrant health center for a summer, which further solidified her commitment to working with migrant women and families. After finishing her undergraduate degree, Danielson attended Yale University School of Nursing to receive her master's degree and become a certified nurse-midwife. Danielson's thesis, entitled "Models for Improving Accessibility of Prenatal Care for Migrant Farmworker Women," outlined models that can be used to ensure access to prenatal care for migrant women.

While attending the annual meeting of the American College of Nurse-Midwives, Danielson met MCN's Candace Kugel, FNP, CNM. Danielson had read a number of Kugel's published articles while researching for her master's research paper and was further inspired by her work after attending her presentation. (This year, Danielson co-presented with Kugel on one of MCN's national webinars, titled, "Health Care for Migrant Women: Taking it to the Next Level," which is archived on our website at <http://www.migrantclinician.org/toolsource/resource/webinar-health-care-migrant-women-taking-it-next-level.html>.)

Return to Michigan

Though her studies took her away from

home, Danielson knew she wanted to focus her career on helping migrant women and their families in Southwest Michigan. As Danielson began her work in a rural hospital near her hometown, the relevance of her thesis became clearer each day. Her hospital was the only one in the county providing obstetric care. Danielson's pregnant agricultural worker patients struggled to find the time and transportation needed to receive care, so her patients were often well into their pregnancy by the time they came in for their first prenatal visit, she said. Other barriers for her patients included lack of health insurance and the ever-present fear of entering the health system for women who are undocumented. Danielson was frustrated by the lack of outreach in her rural area to address these barriers, she said.

Despite these challenges, Danielson's patients motivated and inspired her to continue her work. Her genuine commitment to this population fostered trusting and gratifying relationships with her patients. One of her patients who was experiencing domestic violence confided in Danielson about her situation. Her patient felt demoralized, especially because she had served as a police officer in Mexico before coming to the US. Danielson helped her find a more secure environment so she could safely deliver her baby in the US before returning to Mexico.

Another one of Danielson's patients, 16-year-old Marta, did not realize she was pregnant until she was 16 weeks into her pregnancy and was not able to have her first prenatal appointment until 18 weeks' gestation. At her first appointment, a bedside ultrasound showed she was pregnant with twins. Marta expressed concern over the health of her babies, because she had limited access to food and was underweight pre-pregnancy with less than expected weight gain at that point in pregnancy. She had also seen "Lo que bien empieza... bien acaba," the fotonovela that translates to "What begins well, ends well," by MCN (that is available on our website at <http://www.migrantclinician.org/files/embarazopesticidasfinal.pdf>) that discusses pesticide exposure during pregnancy. Although Marta was now using proper protective measures to minimize pesticide exposure, she had not been doing so for the first months of her pregnancy. Danielson and the obstetrics team helped link Marta with Women, Infant and Children (WIC), a government nutrition program to

The material presented in this portion of Streamline (Pages 1-10) was made possible by grant number U30CS909742 from the Health Resources and Services Administration, Bureau of Primary Health Care. Its contents are solely the responsibility of the authors and do not necessarily represent the official views of the HRSA.

Migrant health as global health: New textbook highlights work of MCN's Candace Kugel

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

Nurses providing care to diverse populations around the world are highlighted in the newly published textbook, *Global Health Nursing: Narratives from the Field* (Harlan, 2014). The book provides first-hand accounts of the challenges and rewards of providing high-quality care in often less-than-ideal clinical settings, and in sometimes dangerous political situations, around the globe.

Candace Kugel, FNP, CNM, Migrant Clinicians Network's Specialist in Clinical Systems and Women's Health, contributed a chapter to the book entitled, "Here Among Us: Caring for Migrant and Immigrant Patients in Rural United States," which takes an inward look at global health nursing in the US.

"I have always thought of migrant health as global health," Kugel noted. Clinicians seeking to help the poor often leave the country to do so, she noted, but they "can be taking care of people from dozens of countries, right here in the United States — and people who are definitely underserved," she offered. "We are a country of wealth, but the immigrant population doesn't always get to benefit from that."

Kugel's chapter is an intimate look at her personal journey into migrant health and the diverse cases she has seen over the years, from the extreme, like a case of Hansen's disease, commonly known as leprosy, or like the heart-

breaking story of her first AIDS patient in the 1980s, to the more typical, like the hundreds of migratory and seasonal agricultural workers who she treated for just a few months of the year. Kugel's struggles and joys closely reflect those of other migrant clinicians in the US. Kugel laments the difficulty of providing enough care during the growing season to solve the health issues of her patients before they move elsewhere, an oft-repeated refrain in the world of migrant clinicians. But she also expounds upon the warmth and appreciation she has received from her patients over the years, a motivation frequently echoed by clinicians serving mobile populations.

Kugel also covers her own journey to learn Spanish, but she is clear in delineating that language skills do not equal cultural competence; several case studies sprinkled throughout the chapter demonstrate how a patient's cultural background can influence care. "I think in terms of doing migrant health, what's most important is just cultural sensitivity and cultural competence — learning about the health beliefs and health behaviors of the people who you're working with," Kugel explained. "Language skills are really critical but not necessarily a requirement."

Her chapter also emphasizes the importance of a health center's collaborative, multidisciplinary approach to care, to foster the

important workplace cohesion needed for effective team care for patients. She tracks her health center's changes as the migrant community itself changed, when more migrants found regular, year-round work.

Finally, Kugel also covers her work with MCN over the past 14 years. Kugel began at MCN managing a practicum for migrant health for newly graduated clinicians. Since then, she has filled a number of roles at MCN, providing important clinical input and direction in MCN's programs, representing MCN and migrant clinicians as a whole at conferences and in the media, and providing clinical training and support to clinicians in the field on behalf of MCN.

MCN's CEO, Karen Mountain, contributed an introductory statement to the textbook. Former MCN Board Chair Kim Larson also wrote a chapter called "Mi Camino, Mis Compañeros: My Journey, My Colleagues."

The book is divided into three sections, to provide a deeper look at global health nursing in a clinical setting, as an avocation, and in research and consulting. It also provides key resources to nurses looking to explore the world of global health nursing. The book is available from its publisher's website: <http://www.springerpub.com/nursing/global-health-nursing-narratives-from-the-field.html>. ■

■ An apple a day continued from page <None>

hard time getting adequate care, due in part to a lack of primary care providers, she said, but "it's definitely getting better," overall.

Dr. Galvez is not shy in expressing her love for her job, despite the difficulties her patients have in receiving care. "A lot of people are really suffering. They have suffered, and oftentimes they continue to suffer. But there's just so much hope that they have," Dr. Galvez noted. "They're going through so much adversity but despite that, they remain hopeful, and positive, and so grateful. How can you not enjoy a job where you have people who are constantly giving you that kind of feedback?"

Looking ahead

Dr. Galvez has been involved in several innovative programs at the forefront of migrant health services. This year, her health center was one of several Oregon health centers piloting an alternative payment plan, wherein the clinic is not paid based on the number of patients that are seen. "Now, we get a chunk of money every month, and we get paid to manage a certain patient panel," Dr. Galvez said. "We're being paid [to meet] certain measures," like getting a patient's diabetes

under control, or addressing obesity. The push to see more patients in a day has lessened, and the funds have allowed her clinic to hire more support staff, like a diabetes educator and a behavioral health provider, which "actually helps us follow through with treatment plans," Dr. Galvez said. "For me, this has been a wonderful change in the way we practice medicine, at least in my clinic. It has made me enjoy my job even more in the last year."

Dr. Galvez is a member of the scientific advisory board for the Project to Prevent and Reduce Adverse Health Effects of Pesticide Exposure on Indigenous Farmworkers, spearheaded by the Oregon Law Center and funded by a grant from the National Institute of Minority Health. (Amy Liebman, MCN's Director of Environmental and Occupational Health, is also on the board.) The project's recently-created educational materials include a video that features Dr. Galvez, and is available in three different languages: Spanish, Mixteco Alto, and Mixteco Bajo. She noted that translation services are extremely limited for indigenous languages, and the materials help address a communication barrier. Dr. Galvez is continuing to explore ways that Virginia Garcia can

implement the educational materials and keep the materials integrated into their programs for years to come.

Last summer, Dr. Galvez also organized a training for providers at Virginia Garcia and another local site on pesticides, entitled, "Workers and Health: How Frontline Providers Make a Difference in Protection of Migrant Workers and their Families." Dr. Galvez coordinated the training with Amy Liebman, MCN's Director of Environmental and Occupational Health. "This was very successful as most providers attended and feedback was excellent," she noted.

Dr. Galvez is happy to continue to serve seasonal and migratory agricultural workers, through the many changes, barriers, and advances in medical care that they will see in the coming years. "Every day, I see patients who are going through adversity, patients who are trying to manage their diabetes but just lost their job, or patients who are pregnant but their partner was just deported. I see that every day," she said. "Each day I come home and I am inspired to continue to work hard because I see that there's truly a need for doctors like me to continue these services." ■

Walk-In, Same-Day, or Appointment? Maximizing continuity in special populations

Jennie McLaurin, MD, MPH, MA, Specialist in Bioethics, Child and Migration Health, Migrant Clinicians Network

[Editor's Note: This is the third article in an ongoing series by MCN on the 19 program requirements that a health center must meet in order to receive or continue to comply with federal funding requirements from Health Resources and Services Administration, Bureau of Primary Health Care (HRSA/BPHC).]

Special populations often present distinct challenges to health center scheduling related to new patient status, continuity, and mobility. Lack of transportation, daily uncertainty, inadequate phone service, cultural differences, and competing priorities can affect appointment keeping, as can general access to care issues. This article examines factors to consider in special population appointment setting, as well as innovative practices that have been successful in health centers serving homeless, HIV, migrant, and immigrant communities. Suggestions for tracking and measuring special population access to care are included.

Most health centers track missed appointment rates (often termed “No Show,” or DNKA, an abbreviation for “Did Not Keep Appointment”) as part of their efforts related to productivity. Some separate out departmental rates, differentiating between dental, behavioral, pediatrics, and adult medicine, for example. It is more unusual to see a further evaluation of no-show rates by special population status or by other more nuanced factors such as day of the week, time of day, diagnostic code, or insurance status. Efforts to reduce missed appointments and increase productivity may fail if such variables are not considered.

First, the center must understand how and why patients access care in current circumstances. Most centers use patient satisfaction surveys to understand whether their hours and locations are accessible; this is a program requirement for health centers receiving grants under Section 330 of the Public Health Service Act. Most such surveys are simple yes/no and Likert-scaled multiple choice questions. They don't ask patients why they have difficulty if patients do rate access as difficult. For centers trying to improve scheduling, flow, and access, initial patient satisfaction surveys can be amended or followed by more detailed surveys done in a group setting or through patient care situations.

Centers may separate out their patient surveys so that they review the needs of all subpopulations. Surveys directed to elderly,

Limited English Proficiency (LEP), homeless, school-age, prenatal, agricultural worker, or uninsured patients are examples of subpopulations whose access to health care merits further consideration. Simple questions to ask these subgroups, upon their request for an appointment or their arrival at the center for care, include:

- Is there a day or time for you that works best for appointments? Why?
- What transportation do you use to come to the center?
- What other places do you go to for health care?
- Is your phone shared with others?
- Are you able to miss work if you need to be seen?
- Who makes decisions about whether you can keep an appointment — you or someone else?
- Can you plan for appointments that are more than a week from now? More than two weeks? More than a month?
- Do you know what to do if you have to cancel or change your appointment?

These are sample questions, and some will be more appropriate than others. Immigrant patients may be unfamiliar with our system of appointment setting and have little understanding of the difference between a health center, health department, emergency department, and urgent care center. We find that some special populations need appointments at certain hours, but unless the center asks, it may be unaware of that. For instance, homeless patients may need to stand in line to get a meal or secure a space in a shelter, so certain times of day may compete with this need. Mothers may need to be home when the school bus arrives. Those depending on transportation from others may be dropped off early and picked up late. Many immigrants and special populations do not know what to do if they need to cancel or rearrange their appointments. Don't make any assumptions, but educate all patients on the standards for appointment setting at the health center and note if standards need to be re-evaluated in light of special population characteristics.

Often, discussions around missed appointments are punitive in nature. Health center leadership often ask consultants and colleagues how many appointments can be missed before a patient is discharged or not allowed to make an appointment. This assumes the patient is in control of his/her

schedule, aware of center expectations, and unwilling to work with center guidelines. This may be true for some, but often there are circumstances beyond the control of the very patients who really need access to care. The following are some innovative practices that health centers are undertaking to address scheduling issues, so that both health center needs and patient access are optimal.

Innovative Practices

New Patient Orientation

A health center serving a large migratory agricultural worker population found that new patients were often missing appointments. Its robust Quality Assurance/Quality Improvement program helped them track the rates of missed appointments for established patients compared to new patients. Most new patients were migratory and seasonal agricultural workers who were in the area for a few months during the summer. The health center discovered that the majority of missed new and follow-up appointments for new patients were made by LEP patients new to the community. The health center implemented an orientation program for new patients and tracked appointment rates before and after this implementation.

The implementation included the following steps:

- The front desk staff gave the site manager the list of new patients to be seen on the following day.
- The front desk staff alerted the site manager when a new patient arrived at the center.
- The manager came to the waiting room and greeted the new patient by name, welcoming him/her to the center. The manager explained that this was a community health center that had a governing board made up of patients just like him/her and that they were glad this patient was a member of the health center community. The manager communicated that he was always open to hearing suggestions on how to improve care, and that as a community health center, everyone depended on each other to do their part to make it successful and excellent. It was explained to the patient that he/she would learn how to make appointments to ensure care, what to do after hours or

continued on next page

in an emergency, and what to do if they needed to reschedule. Emphasis was placed on keeping appointments so services could continue in an excellent manner for everyone. This effort took less than 10 minutes per patient.

Tracking of new patient appointments showed a dramatic increase in kept appointments. New patient show rates improved from about 65% to over 90% in regard to their first return to the center. This example highlights how many patients simply don't understand what it means to be a federally qualified health center and the role that patient scheduling has in their overall care. Patient ownership and identification with scheduling issues is a big component of this practice improvement model.

New Patient Next-Day Access

A health center that started as a Ryan White HIV center recently expanded to become a 330 grantee. Homeless clients are a large special population, as are newly resident Hispanics with LEP. The health center had a small but dedicated following of patients from the Ryan White program, with a missed appointment rate for that population of only about 13 percent. However, the new patient missed appointment rate was as high as 30 percent, which discouraged staff in the transition period of expanded services. It also affected health services income and access for existing patients. Open access, a scheduling approach that allows for same-day appointments, had been attempted, but consistent difficulty with new patients was experienced. The wait time for a new patient stretched out to over a month, and established patients now had increased difficulty in accessing care, due to the appointment time already secured in the prior month for new patients. The following performance improvement initiative took place:

- The center measured current rates of kept appointments for all types of patient subgroups: HIV, behavioral health, medical, homeless, and new patients.

- The center measured the length of time to the 3rd available next appointment. At the start of this initiative, it was over a month.
- The center measured the average number of new patients desiring to be seen each month.
- The center established that 12 slots would be needed daily to meet new patient demand for services, based on the previous measurements.

The center hypothesized that next-day access to new patient appointments would improve kept appointment rates. The center tested making 12 slots available daily in an open access format for new patients. These slots were made available for scheduling at 8am the day prior to the appointment slot. New patients calling for an appointment were either given a slot for the next day, if available and if they so desired, or told to call back at 8am the day before they wanted to be seen. The results of the performance improvement initiative were:

- Slots were filled within the first five minutes of the call-in period. Patients kept initial appointments at a rate of over 90% during the first quarter of this implementation.
- The center measured how many attempts it took for patients to get their first appointment. Patients who did not get an appointment after one attempt at calling the day before were able to get an appointment on the second attempt.
- Overall missed appointments rates fell to 10-12%, benefitting both established and new patients.
- Time to the 3rd available next appointment fell to five days.
- New patients accessing care doubled in the first month of this implementation.
- Patient satisfaction and provider satisfaction with this system were excellent.
- The center continues to measure how many new patient slots need to be secured on a daily basis, based on demand.
- Established patients continue to have the

option to access the center as a walk-in or via an appointment. Most are able to get an appointment within three days now that the schedule has been amended.

- Provider productivity has increased, since more appointments are kept and fewer disruptions to the schedule occur. Providers and support staff are able to have team meetings every morning to assess daily patient flow needs, resulting in a more planned patient visit for all patients.

Other centers find that communicating with patients about their appointments is helpful. While traditional call-back methods notified a patient one day prior to an appointment, many centers find that special population patients need more notice in order to keep their appointments if they have forgotten about a scheduled visit. Centers may decide to measure the effectiveness of calling patients to remind them of an appointment seven, five, three, two, or one day prior to the visit. Different types of centers and services may find a certain period of time works better for their population than others.

While some practices may limit access to care for those who consistently miss an appointment, that should always be a method of last resort, particularly for populations known to experience difficulty in accessing and continuing care. Collaboration between the center and the patient is vital to establishing a truly patient-centered medical home. Cultural, financial, geographic, and physical barriers to care must be measured and addressed. The examples of innovation highlighted here show the power and the positivity of evaluating the barriers experienced by a health center's vulnerable populations, and implementing change that addresses the underlying issues that affect compliance. We welcome your communication on this issue and examples of how you have improved patient care related to appointments and scheduling. Please send your comments to jmclaurin@migrantclinician.org. ■

■ **A midwife's role** *continued from page 2*

assist new mothers, and the local food bank. The hospital's nutritionist spent time talking with her about healthy foods and the recommended weight gain in a twin pregnancy. Danielson and hospital staff reviewed proper pesticide protection techniques and reassured Marta that she was doing everything she could to protect herself and her babies at that time. Marta gave birth to healthy twin girls at 36 weeks' gestation, and she and her twins did well during and after the delivery, she said.

This is the work and dedication of a migrant clinician. Their patients work tirelessly,

in and out of the fields, to overcome great adversity. Clinicians also work tirelessly, in and out of the exam room, to improve more than just the health of their patients. In Danielson's words, "As long as the struggles for migrant health exist, I will stay in the field, to work to try to overcome those barriers."

From her childhood in rural Michigan to her work as a certified nurse-midwife, Danielson's close work with the migrant population and the dedicated clinicians who serve them fostered a genuine commitment to health justice for the rural and mobile underserved. When asked what she finds

personally gratifying about her work, Danielson responded, "Everything: after a woman has a healthy baby and is so happy and grateful; seeing the outcomes and seeing the joy of my patients; [and] having patients who are immensely thankful to have received care regardless of their insurance or documentation status." Migrant women share their stories of suffering, resilience, and success with Danielson and the many other clinicians who care for them. Danielson will continue to play her role in their stories by delivering new life and hopeful beginnings. ■

Chagas disease in the US

Rebecca L. Hornbach, Master of Public Health, The University of Texas School of Public Health, Master of Global Policy Studies, Lyndon B. Johnson School of Public Affairs

Public health burden

Chagas disease is a little-known public health threat with significant disease burden in the United States. Few physicians, policymakers, and residents realize that this often-deadly parasitic disease, typically transmitted to humans through the bite of a nocturnal triatomine bug in Latin America, affects an estimated 300,000 to 1 million individuals across the country.^{1,2,3} The annual disease burden of Chagas disease including Disability-Adjusted Life Years (DALYs) rivals the cost of Lyme disease in the US.⁴ Yet, there are no comprehensive Chagas disease surveillance and control programs in the United States, and few infected individuals are properly diagnosed and treated.

Epidemiology

Most researchers believe that the majority of infected individuals in the US acquired the disease in Latin America and later migrated to the United States.⁵ An estimated eight million to 11 million people in Latin America are infected with Chagas disease,⁶ despite control measures such as housing improvements, insecticide spraying, and community education.³ Although most transmissions probably occur outside the US, increasing evidence demonstrates that vectoral transmissions also occur domestically. Within the US, 11 species of triatomine bugs carry *T. cruzi*, eight of

which have been implicated in human bites in southern states.⁵ The Centers for Disease Control and Prevention (CDC) currently recognizes 23 autochthonous cases of Chagas disease in the United States.⁷ But many other infections may go undetected, particularly among individuals who frequently sleep in substandard housing or outdoors in southern states.⁸⁻¹⁰

Secondary infections also occur in the US through mother-to-child (transplacental) transmission or receipt of contaminated blood/organ donations.³ Few data are available regarding the frequency of these vertical transmissions in the US and many likely go unrecognized due to lack of screening and distinctive symptoms.¹¹ However, the CDC estimates that more than 300 babies are born infected with Chagas disease in the US every year.¹² Newborn infections are nearly 100 percent curable when detected, but a failure to diagnose can lead to early death.¹³

Pathology

Chagas disease affects people in stages and manifests in various forms, which are not yet fully understood or defined.^{3,14,15} Once infected, individuals typically experience an incubation period of one to two weeks and then enter the acute phase of the disease.⁵ The acute phase lasts four to 12 weeks, depending on the transmission type.^{3,5} During the acute

phase, infected individuals may present febrile illness, inflammation at the entry point (if vectoral transmission) known as *Chagoma*, or no symptoms.¹⁶ In endemic areas, the mean age for acute infection is four years old.¹⁷ In less than one percent of cases – more for small children – individuals experience severe acute disease, which is often fatal.⁵ Most frequently, though, the acute phase is asymptomatic and goes unnoticed and undiagnosed.¹⁶

Following the acute phase, infected individuals enter the chronic phase of Chagas disease, which persists throughout their lifetime.³ The chronic phase begins in an indeterminate form. The indeterminate form is a latent disease stage characterized by low parasite levels, no visible symptoms, and the potential weakening of cardiac and/or gastrointestinal systems.^{3,16} Despite a lack of symptoms, infected persons can still transmit the disease to others through vertical routes. Sixty to 70 percent of Chagas patients remain in the indeterminate form throughout their lifetime.³ However, 30 to 40 percent of cases enter the determinate form, which can be triggered by a compromised immune system.³ The mean age of onset is 35 to 45 years old.¹⁷ The determinate form usually manifests as progressive cardiac and/or gastrointestinal destruction through parasite persistence in tissues.^{3,5} Resulting car-

continued on page 10

R E F E R E N C E S

1. Hotez PJ. Fighting neglected tropical diseases in the southern United States: Poverty and lack of awareness need to be tackled. *BMJ*. 2012;345.
2. Stimpert KK, Montgomery SP. Physician Awareness of Chagas Disease, USA. *Emerg Infect Dis*. 2010;16(5):871-872. doi:10.3201/eid1605.091440.
3. Rassi Jr A, Rassi A, Marin-Neto JA. Chagas disease. *The Lancet*. 2010;375(9723):1388-1402.
4. Lee BY, Bacon KM, Bottazzi ME, Hotez PJ. Global economic burden of Chagas disease: a computational simulation model. *Lancet Infect Dis*. 2013;13(4):342-348. doi:10.1016/S1473-3099(13)70002-1.
5. Bern C, Kjos S, Yabsley MJ, Montgomery SP. Trypanosoma cruzi and Chagas' Disease in the United States. *Clin Microbiol Rev*. 2011;24(4):655-681. doi:10.1128/CMR.00005-11.
6. Organización Panamericana de la Salud. *Organización Panamericana de la Salud Estimación Cuantitativa de La Enfermedad de Chagas En Las Americas*. Montevideo, Uruguay; 2006.
7. Montgomery SP, Starr MC, Cantey PT, Edwards MS, Meymandi SK. Neglected Parasitic Infections in the United States: Chagas Disease. *Am J Trop Med Hyg*. 2014;90(5):814-818. doi:10.4269/ajtmh.13-0726.
8. Gascon J, Bern C, Pinazo M-J. Chagas disease in Spain, the United States and other non-endemic countries. *Acta Trop*. 2010;115(1):22-27.
9. Garcia MN, Murphy SK, Gross A, Wagner J, Murray KO. Knowledge, attitudes, and practices of Texas hunters: a potentially high-risk population for exposure to the parasite that causes Chagas disease. *Parasit Vectors*. 2015;8(1):197. doi:10.1186/s13071-015-0815-4.
10. Franco-Paredes C, Bottazzi ME, Hotez PJ. The Unfinished Public Health Agenda of Chagas Disease in the Era of Globalization. *PLoS Negl Trop Dis*. 2009;3(7):e470. doi:10.1371/journal.pntd.0000470.
11. Buekens P, Almendares O, Carlier Y, et al. Mother-to-child transmission of Chagas' disease in North America: why don't we do more? *Matern Child Health J*. 2008;12(3):283-286. doi:10.1007/s10995-007-0246-8.
12. CDC Media Relations. Press Release: Parasitic infections also occur in the United States. 2014. <http://www.cdc.gov/media/releases/2014/p0508-npi.html>. Accessed August 6, 2014.
13. Flores-Chávez M, Faez Y, Olalla JM, et al. Fatal congenital Chagas' disease in a non-endemic area: a case report. *Cases J*. 2008;1(1):302.
14. Hanford EJ, Zhan FB, Lu Y, Giordano A. Chagas disease in Texas: Recognizing the significance and implications of evidence in the literature. *Soc Sci Med*. 2007;65(1):60-79. doi:10.1016/j.socscimed.2007.02.041.
15. Hotez PJ, Dumontel E, Betancourt Cravioto M, et al. An Unfolding Tragedy of Chagas Disease in North America. *PLoS Negl Trop Dis*. 2013;7(10):e2300. doi:10.1371/journal.pntd.0002300.
16. Prata A. Clinical and epidemiological aspects of Chagas disease. *Lancet Infect Dis*. 2001;1(2):92-100.
17. Vandebroek I, Thomas E, Sanca S, Damme PV, Puyvelde LV, Kimpe ND. Comparison of health conditions treated with traditional and biomedical health care in a Quechua community in rural Bolivia. *J Ethnobiol Ethnomedicine*. 2008;4(1):1. doi:10.1186/1746-4269-4-1.
18. Hotez PJ. Neglected Infections of Poverty in the United States of America. *PLoS Negl Trop Dis*. 2008;2(6):e256. doi:10.1371/journal.pntd.0000256.
19. Wallace J A, Miller L, Beavis A, Baptista C, A.C. Chagas disease: a proposal for testing policy for solid-organ transplant in the United States. *Prog Transplant*. 2013;23(3):272-277. doi:10.7182/pit2013712.
20. Prevention C-C for DC and. CDC - Chagas Disease - Resources for Health Professionals - Diagnosis. http://www.cdc.gov/parasites/chagas/health_professionals/dx.html. Accessed April 8, 2015.
21. CDC - Parasites - Blood. <http://www.cdc.gov/parasites/blood.html>. Accessed April 8, 2015.
22. WHO | Chagas disease (American trypanosomiasis). *WHO*. <http://www.who.int/mediacentre/factsheets/fs340/en/>. Accessed June 6, 2014.

A policy analysis of Chagas disease in the US

Rebecca L. Hornbach, Master of Public Health, The University of Texas School of Public Health, Master of Global Policy Studies, Lyndon B. Johnson School of Public Affairs

Federal policies

Although the response to Chagas disease in the US is limited, a few federal policies exist through agencies or partnerships within the US Department of Health and Human Services (HHS).

CDC: The Division of Parasitic Diseases and Malaria at the Centers for Disease Control and Prevention (CDC) addresses Chagas disease through its Initiative on Neglected Parasitic Disease. The initiative fills several gaps in the health care system, such as the unavailability of confirmatory patient diagnostics, treatment drugs, and insect testing. The CDC's multi-pronged approach also includes free online continuing education courses† for health care providers, and collaboration with clinics, researchers, and patient advocacy groups.

US Biovigilance Network: The US Biovigilance Network is a public-private partnership created in 2006 by HHS and private organizations, such as the American Association of Blood Banks (AABB). The Chagas Biovigilance Network is one branch of the network. It records and confirms data on new cases of Chagas disease reported by blood banks across the country and displays the case locations by zip code on a publicly-accessed website.¹

FDA: Between 1989 and 2002, the Food and Drug Administration (FDA) and the Blood Products Advisory Committee (BPAC) recog-

nized that Chagas disease was transmissible through blood transfusions and posed a risk to the blood supply.² To facilitate screening, the FDA has approved three tests for Chagas disease, the Ortho ELISA test being the most widely used.³⁻⁵ In December 2010, the FDA issued a recommendation to US blood centers to test all blood donors once for Chagas disease. Approximately 65 percent of the US blood supply is currently tested for Chagas disease.¹

State response

A few states have initiated a response to the threat of Chagas disease. The clearest state policy action is the addition of Chagas disease to the statewide list of reportable diseases. Four states have taken this action: Arizona, Massachusetts, Tennessee, and Texas.⁶⁻⁹ Although the addition of Chagas disease to the state list of notifiable diseases does not trigger new funding or programming for the disease, it may indirectly facilitate testing, case investigations, and treatment of existing cases. Additional state policy actions include funding for Chagas disease-related programs, such as triatomine testing and at-risk patient diagnosis and treatment at public hospitals and clinics.

Policy challenges

As a neglected disease, Chagas disease in the US does not possess the disease qualities that typically motivate government action, such as

evidence of high prevalence, high transmissibility rate, high mortality/morbidity rate, impact on an empowered population, scientific evidence, and the potential to create new markets. Without these qualities, policymakers are unlikely and even unable to support policy action. And yet, several scientists and researchers fiercely maintain that Chagas disease is an unrecognized, widespread public health threat in the US that requires further research and policy action. Addressing this threat, thus, requires certain strategies that side-step barriers to action. These strategies include issue linkage with other neglected diseases, use of a targeted approach, and the creation of new partnerships and collaborations.

Potential policies to pursue

Below are a few of the most tractable policy pursuits. Each policy was proposed by at least one relevant researcher, health official, physician, or organization.

(1) *Federal and state Neglected Tropical Disease (NTD) legislation:* Legislation on NTDs has the potential to elevate the status of Chagas disease as a national and state health topic and to ensure funding for research.¹⁰ If Congress passes a bill on NTDs, it demonstrates that legislators recognize the importance of the bill's content. In turn, during the formal appropriations process, legis-

continued on page 8

R E F E R E N C E S

1. American Association of Blood Banks. Chagas' Biovigilance Network. <http://www.aabb.org/research/hemovigilance/Pages/chagas.aspx>.
2. U.S. Food and Drug Administration. Blood Products Advisory Committee Meeting, Issue Summary: Reentry of blood donors deferred on the basis of screening test results for antibodies to *T. cruzi*. 2014. <http://www.fda.gov/downloads/AdvisoryCommittees/CommitteesMeetingMaterials/BloodVaccinesandOtherBiologics/BloodProductsAdvisoryCommittee/UCM406411.pdf>. Accessed October 15, 2014.
3. Food and Drug Administration Center for Biologics Evaluation and Research. Guidance for Industry: Use of serological tests to reduce the risk of transmission of *Trypanosoma cruzi* infection in whole blood and blood components intended for transfusion. 2010. <http://www.fda.gov/downloads/BiologicsBloodVaccines/GuidanceComplianceRegulatoryInformation/Guidances/Blood/UCM235960.pdf>. Accessed October 20, 2014.
4. Research C for BE and. Infectious Disease Tests - November 18, 2011 Approval Letter - ABBOTT ESA Chagas. <http://www.fda.gov/biologicsbloodvaccines/bloodbloodproducts/approvedproducts/licensedproductsblas/blooddonorscreening/infectiousdisease/ucm280680.htm>. Accessed April 8, 2015.
5. Wallace J A, Miller L, Beavis A, Baptista C, A.C. Chagas disease: a proposal for testing policy for solid-organ transplant in the United States. *Prog Transplant*. 2013;23(3):272-277. doi:10.7182/pit2013712.
6. Arizona Department of Health Services. Administrative Order 2007-01. 2007. <http://www.azdhs.gov/phs/oids/vector/chagas/files/chagadmord.pdf>. Accessed September 15, 2014.
7. Massachusetts Department of Public Health, Bureau of Infectious Disease. Summary of reportable diseases, surveillance, and isolation and quarantine requirements. 2013. <http://www.mass.gov/eohhs/docs/dph/cdc/reporting/rdq-reg-summary.pdf>. Accessed October 27, 2014.
8. Tennessee Department of Health. Reportable diseases and events: Chagas disease. <http://health.state.tn.us/ReportableDiseases/ReportableDisease.aspx/PublicHealthReporting>. Accessed September 16, 2014.
9. Texas Administrative Code Title 25 Part 1 Chapter 97 Subchapter A "Control of Communicable Diseases." [http://info.sos.state.tx.us/pls/pub/readtac\\$ext.VIEWTAC?tac_view=5&ti=25&pt=1&ch=97&sch=A&rl=Y](http://info.sos.state.tx.us/pls/pub/readtac$ext.VIEWTAC?tac_view=5&ti=25&pt=1&ch=97&sch=A&rl=Y). Accessed October 8, 2014.
10. Hotez PJ. Interview. 2014.
11. Organ Procurement and Transplantation Network. Organ procurement and transplantation network policies. 2014. http://optn.transplant.hrsa.gov/ContentDocuments/OPTN_Policies.pdf.
12. Chin-Hong PV, Schwartz BS, Bern C, et al. Screening and Treatment of Chagas Disease in Organ Transplant Recipients in the United States: Recommendations from the Chagas in Transplant Working Group. *Am J Transplant*. 2011;11(4):672-680. doi:10.1111/j.1600-6143.2011.03444.x.
13. Drugs for Neglected Diseases Initiative. Chagas disease DNDi Strategy. DNDi. <http://www.dndi.org/diseases-projects/diseases/chagas/dndi-strategy.html>. Accessed December 4, 2014.
14. Dumonteil E, Bottazzi ME, Zhan B, et al. Accelerating the development of a therapeutic vaccine for human Chagas disease: rationale and prospects. *Expert Rev Vaccines*. 2012;11(9):1043-1055. doi:10.1586/erv.12.85.

From the intern's desk: A look at Health Network

By Spurthi Tarugu, Health Network Intern, Migrant Clinicians Network

[Editor's Note: Last year, Spurthi joined our Health Network team as an intern from the University of Texas. She is an Economics major and a pre-med student. As she says: "My goal is to go to med school and become a doctor; eventually, I want to start a nonprofit in India to provide quality accessible health care to rural Indians." Here, she presents her intern project and shares her perspective on day-to-day life in the Health Network office.]

As an intern at Health Network, Migrant Clinicians Network's bridge case management program, I watched a small group of Health Network associates as they processed new patient enrollments, explained the benefits of the organization to the patient, and maintained regular contact with clinics and patients in order to ensure continuity of care as migrants shifted locations. I saw each of the Health Network associates juggle hundreds of cases, communicate with migrants in multiple languages, and track patients across continents. The phone never stopped ringing and the work never ended.

The fight for global continuity of care is a tough one. Migrants tend to move according to seasonal jobs, and the associates track and coordinate health care in these various locations. There are occasionally tough cases where the client seems to vanish and is lost to follow-up, or where patients request to be dropped. A patient who did not complete care – either because of the patient's decision to drop, or because the patient was lost to follow-up — is a complex, multivariable

problem. A single patient could spread tuberculosis or other infectious diseases to hundreds of people as he or she travels, so it is incredibly important that we do everything we can to maintain enrollment in the program. Recognizing the significance of dropped or lost patients, I chose to focus my intern project on this issue. I wanted to statistically establish why we were losing patients and how MCN could reduce these instances.

Health Network's database is an immense wealth of knowledge, containing information about thousands of patients and their clinics, and logs of every contact between MCN and a patient or clinic. I chose to collect data on: patients, clinics, number of patient contacts, number of clinic contacts, average time between clinic contacts, and average time between patient contacts. I used this data to determine whether these factors significantly influenced a patient wanting to be dropped or being lost to follow-up.

Prior to running statistics, I predicted that the average time between patient contacts or number of patient contacts would have a great effect on whether a patient decided to drop or was lost to follow-up, but a deeper analysis of a multiple regression test proved otherwise. In these tests, significance can be established when the returned p-value is less than the chosen alpha value. In this case, I chose an alpha value of 0.05, which signifies 95 percent confidence in the significance of a variable. The test returned a p-value of 0.004 for the average time between clinic

contacts variable. Because this p-value is less than the alpha value of 0.05, I can be 95 percent sure that this variable has a significant effect on a patient dropping or not. More specifically, it tells me that I am 95 percent sure that with each additional day of no contact between a clinic and MCN, the chances of a patient dropping increase by 0.16 percent.

In reality, however, the reasons for a patient's decision to drop, or for a patient getting lost to follow-up, are complex, and it's not as easy as chalking it up to one specific variable. There are many factors that can influence this decision, such as the circumstances in which the patient is enrolled, outreach staff at the enrolling clinic who explain MCN's role in their health care, how they became enrolled (via a Health Network interview or clinic interview), patient's work schedule, and the number of times the patient moves. However, by communicating with clinics more frequently, statistically, the instances of patients being lost to follow-up or dropping should decrease.

Regardless, Migrant Clinicians Network has a high rate of patient retention and has been fundamental in educating and providing health care access to a large population of migrant poverty-stricken workers around the globe. As an intern, I got to see how dynamic each day was, I witnessed how such a tight-knit, relatively small program functioned flawlessly to help thousands of people, and I worked with kind, inspiring people who are truly making a difference in the world. ■

■ A policy analysis of Chagas disease in the US continued from page 6

lators would likely stipulate funding and resources towards NTDs. In June 2014, Congressman Smith of New Jersey introduced the "End Neglected Tropical Diseases Act of 2014," which has garnered promising support on both sides of the aisle.¹⁰

(2) *Mandatory organ donor screening:* Currently, the United Network for Organ Sharing (UNOS) does not require or recommend that organ procurement organizations (OPOs) screen potential organ donors for Chagas disease in the US, though UNOS does require screening for other infectious diseases.¹¹ In 2011, the Chagas in Transplant Working Group, comprised of transplant infectious disease specialists and OPO representatives, proposed that UNOS recommend or require targeted Chagas disease screening of organ donors.¹²

(3) *New drug approval:* FDA approval of safe, effective treatment drugs would decrease

barriers to patient treatment. Several collaborative organizations are making progress toward this goal. The Drugs for Neglected Diseases initiative (DNDi), a nonprofit research and development organization that develops new treatments for NTDs, is currently working on a new Chagas disease treatment drug and aims to gain FDA approval.¹³ The Sabin Vaccine Institute is also working on a Chagas disease treatment drug.¹⁴

(4) *Targeted state policies/recommendations:* It may be appropriate for state health departments to issue guidance for testing for Chagas disease, particularly in certain geographic regions, for at-risk populations, and among certain types of physicians (ie, primary care physicians, cardiologists, and obstetricians). States with decentralized health systems may harbor potential for local-level Chagas disease policies. Local health department support could come in

the form of funding, in-kind donations, community education initiatives, or screening recommendations.

Non-governmental action is also critical to addressing Chagas disease in the US.

Through the use of alternative strategies, such as coalition building, unilateral action, and soft law, non-governmental actors can significantly increase the public health response. The Olive View Clinic Chagas Disease Center of Excellence illustrates the power of these methods. Through creativity and commitment to action, the clinic has developed new techniques for Chagas disease diagnosis, treatment, and community outreach, which will soon be replicated throughout Los Angeles County.

Questions regarding diagnosis and treatment should be directed to the CDC's Parasitic Diseases Public Inquiries (404-718-4745 or chagas@cdc.gov). ■

Navigating the telehealth waters: Two approaches to telehealth in primary care

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

On the remote island of Matinicus off the coast of Maine, there is no health clinic, which is to be expected: The tiny lobster and fishing community is home to just 50 residents, although that population figure grows when summer visitors arrive. And yet all residents can access both primary care and specialty services when a boat called the *Sunbeam* arrives twice a month, with a nurse on board, and an exam room on the boat with a cart of equipment to facilitate communication with primary care providers at a health center off the island. This telehealth program, unique in its inclusion of primary care into the suite of offered services, is operated in part by a Federally Qualified Health Center (FQHC) called Islands Community Medical Center, located on Vinalhaven, a much larger island about a dozen miles north of Matinicus.

With the aid of a 32-inch television screen, a Polycom camera that hooks up to the TV, a microphone, and a telephonic stethoscope, the nurse on the boat can connect to a primary care provider on Vinalhaven, check a patient's vital signs, report information to the provider, and answer any questions of the provider.

"It's been great to have telemedicine," says Dinah Moyer, the Executive Director of Islands Community. Before the *Sunbeam* began its services, island residents could spend upwards of seven and a half hours a day in travel, to reach a specialist on the main land. Now, patients can board the boat for basic services as well as specialty care. She admits that the commitment is high for a small population. "We probably see between 30 and 50 visits a year, including behavioral health," she estimated. But it works, she says, in large part because of a start-up grant that covered the cost of the equipment, and the dedication of the *Sunbeam's* operator, Maine Seacoast Mission, a nonprofit that runs non-denominational services for island communities. "The *Sunbeam* goes out to the islands and they have coffee; they have a supper. They are going anyway even if they don't have medical visits," Moyer said; the collaboration fits the missions of both parties, and the remote, if small, population benefits greatly.

Primary care services through telehealth is a good use of the technology, says Steve North, the founder and medical director of the nonprofit Center for Rural Health Innovation (CRHI). "When most people think of telehealth, [they think] it's a way to bring specialty care into primary care offices. That's a great application; however, it



The Sunbeam arrives on Matinicus Island twice a month to provide telehealth primary care services.

doesn't do a whole lot to offset needs for preventative care and ongoing care," North said, particularly for populations that cannot get to those primary care offices in the first place. CRHI operates a school-based telemedicine program in 22 rural schools, in three counties in the Appalachian Mountains of North Carolina. If a child gets sick at school, the school nurse may opt to have the child see a practitioner through CRHI's telehealth set-up: two-way secure video conferencing, a telephonic stethoscope, an otoscope fitted with a tiny camera, and a general exam cam that can do close-ups on a rash.

While trained professionals are preferred, non-trained staff can still at the minimum facilitate an appointment. When a nurse is unavailable, another staff person – the school's secretary, for example – may step in. "One of the great things about telehealth is the ability to use a wide variety of folks to present that patient," North said. Nonetheless, non-trained staff would not be as useful in, for example, checking lymph nodes. "Your diagnostic abilities can be somewhat limited, based upon the fact that, as our executive director says, you can't palpate, and you can't smell. Beyond that, I can do anything that I can do in my office."

The software installed in the cart provides extra features. "Any of the images we see, we can... freeze and pull into the EHR," says North. The practitioner can also remotely control the general exam cam's view – to remove glare, or increase the light. Total cost? Around \$20,000 for the equipment, software, and installation – although North

notes that there are less expensive carts, and the overall cost of telehealth is declining as its popularity increases. Moyer's equipment, she noted, was much more expensive when they purchased it in 2004.

Like Islands Community, CRHI started up with grants. It has received local, state, and federal funds to offset equipment costs and pay for practitioners' salaries. For those with insurance, CRHI bills for its visits through multiple insurers.

Equipment costs do not end after they're initially purchased. Back on Matinicus, the nurse on the *Sunbeam* doesn't often use the telephonic stethoscope, Moyer said, because it isn't fully functioning. Moyer noted that some of the telehealth equipment is over a decade old. Funds will need to be raised again at some point, to upgrade.

Utilization of services is another issue. North admits that his team has to work constantly at increasing utilization of the services. "We're delivering care in a new site, for all of these communities," North said, noting the school-based medicine movement is only about 30 years old. Adding a new way of delivering that care – through telehealth – makes it even more difficult to break into new communities successfully.

Still, North believes there's a potential for similar set-ups to provide primary care to remote, underserved populations, like migratory agricultural workers in rural camps. "You'd be able to connect to a culturally-competent provider," he noted as one benefit, adding that telehealth would be effective for "keeping the uninsured and undocu-

continued on page 10

Telehealth reimbursements

Claire Hutkins Seda, Writer, Migrant Clinicians Network, and Managing Editor, Streamline

Medicare covers limited telehealth services provided by a community health center like Islands Community Medical Center to an eligible patient through a Medicare Part B code specific for telemedicine — code 0780. A facility fee code (Q1014) is also used, which indicates that telemedicine equipment was used. No deductible is necessary for this Medicare service. Additional billing information, including a list of covered services and corresponding codes is available on the Centers for Medicare and Medicaid Services (CMS) website.¹

Medicare will only reimburse services provided to a patient located in a county outside of a Metropolitan Statistical Area (MSA) or in a rural Health Professional Shortage Area. The Health and Resources Services Administration (HRSA) website provides a tool to determine eligibility of an originating site — where the

clinician providing telehealth to remote patients is located.² Authorized originating sites include practitioner offices, hospitals, Critical Access Hospitals (CAHs), community mental health centers, skilled nursing facilities, rural health clinics, federally qualified health centers (FQHCs) and hospital-based or CAH-based renal dialysis centers.¹

Telehealth services may be used for follow-up appointments that, if provided through other means like a phone call follow-up, would not be reimbursable. At Islands Community Medical Center, their contractual dentists are on the mainland, several hours away. Currently, the dentists are called several times a week to review digital X-rays sent remotely. They then coordinate care telephonically with the dental assistant or hygienist at Islands Community's main facilities on Vinalhaven. Use of telemedicine

would allow scheduled review as well as a reimbursement channel. Many other similar uses of telehealth may be possible if equipment is available on the patient's end. ■

RESOURCES

- 1 Centers for Medicare and Medicaid Services. Medicare Learning Center Telehealth Services. <http://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/downloads/TelehealthSrvcsfcctsht.pdf>. Accessed February 26, 2015.
- 2 Health and Human Resources Administration. Medicare Telehealth Payment Eligibility Analyzer. <http://datawarehouse.hrsa.gov/telehealthAdvisor/telehealthEligibility.aspx>. Accessed February 26, 2015.
- 3 Centers for Medicare and Medicaid Services. Telehealth. <http://www.cms.gov/Medicare/Medicare-General-Information/Telehealth/index.html>. Accessed February 26, 2015.

■ Navigating the telehealth waters continued from page 9

mented folks in their community for care, as opposed to needing to travel 50 miles for cellulitis, or an asthma exacerbation — things that could easily be treated via a telehealth setup.”

Connectivity is less and less an issue, said North. “It’s not unreasonable to run a telehealth unit through a 4G LTE signal,” he said, meaning that, in most places where a smartphone gets service, a telehealth cart can help patients see a practitioner. Conversely, practitioners only need that same level of service connection. North

recalled receiving a call from one of CRHI’s schools informing him of a sick patient while driving to rural Kentucky. He pulled off the freeway and pulled out his laptop. With the laptop visuals and phone conversation, he said, “I saw the patient, prescribed medication, talked to the family, and did everything that I could, remotely.”

North also sees many new applications of telehealth for the primary care world in the future. Recently, CRHI received a small grant to bring a telehealth cart to a small community, where patients can contact their indi-

vidual primary care providers, who only need to download the provided software to be able to see their patients remotely. If the provider is not available, CRHI’s Nurse Practitioner will see the patient and update the provider after the visit.

“There’s real potential there, in... community-driven telehealth programs,” North believes. As telehealth expands beyond specialty care, Islands Community and CRHI serve as early models in how to bring needed primary care services to populations who may otherwise be underserved. ■

■ Chagas disease in the US continued from page 7

diac complications often lead to heart failure, ventricular arrhythmias, or v-fib-induced sudden death.³ Gastrointestinal complications, which are less common than cardiac, often lead to megacolon or megaesophagus.³ Regardless of the specific symptoms, the determinate form of Chagas disease causes severe disability and death within 10 to 30 years after infection.³

Diagnosis & treatment

Given the somewhat elusive pathology of Chagas disease, clinical diagnosis is challenging and requires a high index of suspicion. The US Food & Drug Administration (FDA) has approved three tests for Chagas disease screening. Authorized in 2006, the Ortho ELISA test is currently the most widely used testing method for Chagas disease in the US.^{18,19} The FDA has also approved the Abbott Prism test and Abbott ESA Chagas test.¹⁹ The international standard for diagnosing chronic phase Chagas disease includes testing with two different assays with different formats and

based on different antigen preparations.²⁰ The CDC adheres to this standard and provides confirmatory testing for suspected cases.²¹

In the absence of a Chagas disease vaccine or cure, medical professionals rely on two treatment forms: parasite eradication in the patient and treatment of disease symptoms.³ To target the parasite, the World Health Organization (WHO) recommends two antitrypanosomal drugs (Benznidazole and nifurtimox).²² Drug treatment is very effective during the acute phase and has a near-100 percent cure rate in congenitally infected infants.¹³ However, drug effectiveness significantly decreases with the onset of the chronic phase.²² The FDA has approved neither drug, so US patients and their physicians must go through the CDC to obtain Benznidazole, provided at no cost.⁸ Still, these drugs are problematic in that they can produce toxic side effects and require lengthy drug regimens.^{1,8}

Implications for migrant clinicians

Latin American migrants may face a particular-

ly high risk of Chagas disease and likely suffer a higher disease burden than other groups of US residents. Migrants may have experienced exposure in endemic nations of origin, en route to the US, or while sleeping outside or in substandard housing in southern US states. In addition, children of Latin American migrants are at risk for congenital transmission.

Clinicians working with migrant populations should become more attune to possible Chagas disease signs, symptoms, and exposures. When warranted, physicians should screen patients through physical examination, medical/exposure history questioning, and/or blood tests. By increasing their index of suspicion, health workers at migrant and community health centers can identify existing Chagas disease cases and begin to properly treat the thousands of individuals silently suffering this disease in the US.

Questions regarding diagnosis and treatment should be directed to the CDC’s Parasitic Diseases Public Inquiries (404-718-4745 or chagas@cdc.gov). ■

Medical repatriation of migrant farm workers in Ontario: a descriptive analysis

Aaron M. Orkin, MD, MSc, Morgan Lay, BSocSc, Janet McLaughlin, PhD, Michael Schwandt, MD, MPH, Donald Cole, MD, MSc

[Editor's Note: This is an excerpt from a research paper originally published in *CMAJ Open*, the open-access journal of the Canadian Medical Association Journal. Please refer to the article on *CMAJ Open*'s website for the full text. This version has been edited to conform to *Streamline*'s style guidelines. Citation: Orkin AM, Lay M, McLaughlin J, Schwandt M, Cole D. Medical repatriation of migrant farm workers in Ontario: a descriptive analysis. *CMAJ Open*. 2014;2(3):E192-8. DOI: 10.9778/cmajo.20140014. <http://www.cmajopen.ca/content/2/3/E192.full?sid=53cb2142-a9b8-4bc8-b812-611bc542c6b5#sec-5>. Accessed February 26, 2015.]

Each year, nearly 40,000 temporary foreign worker positions are approved for employment in Canadian agriculture.¹ These migrant farm workers are employed through various streams of the Temporary Foreign Worker Program, primarily the Seasonal Agricultural Worker Program. Through this program, workers from Mexico and the Caribbean are employed for up to eight months each year, with workers often returning for multiple successive seasons. The health status of migrant farmworkers and their access to health services in Canada has come under recurrent scrutiny, recently in relation to the 2013 Peart v. Ontario (*Community Safety & Correctional Services*) Human Rights Tribunal of Ontario hearing into the 2002 workplace death of Jamaican farmworker, Ned Peart.

Most workers hired under the Seasonal Agricultural Worker Program undergo medical examinations before their arrival in Canada; these generally include a physical examination, blood and urine tests, and chest radiography. Once in Canada, they have access to provincial health coverage, although multiple practical barriers often inhibit this access. Few studies exist regarding the occupational health of migrant farmworkers in Canada. Inconsistent reporting requirements, as well as their short-term employment and residence, may contribute to incomplete reporting of the frequency, severity, and nature of occupational illness among these workers. Further, their occupational health conditions may not be accurately captured in workers' compensation data or occupational surveillance

systems such as the Canadian Agricultural Injury Surveillance Program.^{2,3}

When faced with health problems or injuries that prevent them from continuing work, migrant farmworkers in Canada under the Seasonal Agricultural Worker Program are normally repatriated to their country of origin. Under the program's international agreements, "the employer, after consultation with the [worker's] government agent, shall be entitled for noncompliance, refusal to work, or any other sufficient reason, to terminate the worker's employment... and so cause the worker to be repatriated."⁴ The repatriation of migrant farmworkers for health-related reasons and medical termination of their employment represents a unique form of deportation from Canada. Although farm workers are entitled to receive health care before the termination of their employment and repatriation, in practice, workers are sometimes repatriated immediately, without receiving such care.⁵

Although the labor policy and human rights dimensions of medical repatriations and other features of Canada's temporary foreign worker program have been examined elsewhere,^{6,7} the illnesses and injuries leading to medical repatriation of migrant farmworkers have not previously been described in the epidemiologic or occupational health literature. The primary objective of this study was to present data describing the reasons and dominant diagnostic categories for medical repatriation of migrant farmworkers in Ontario between 2001 and 2011. Secondary objectives were to compute rates of dominant medical and traumatic conditions resulting in

medical repatriation in this population and to explore the use of Foreign Agricultural Resource Management Services repatriation data as a source for occupational epidemiology research in this population.

Methods

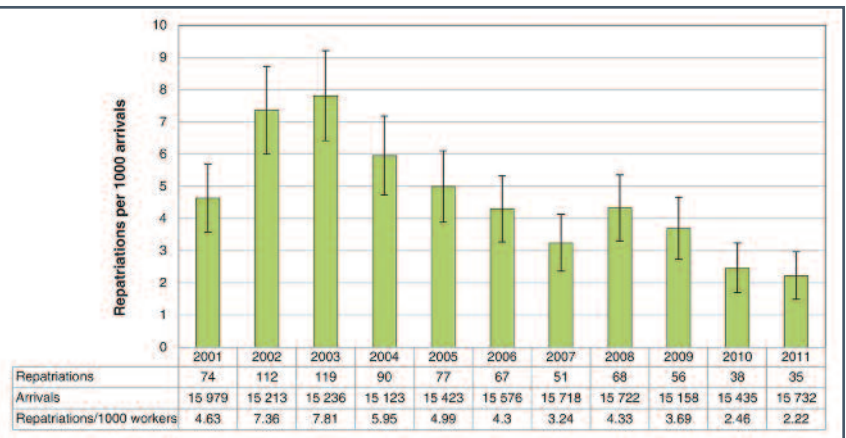
Data sources

In Ontario, more than 15,000 annual Seasonal Agricultural Worker Program contracts are administered by Foreign Agricultural Resource Management Services, a federally incorporated nonprofit corporation authorized by Employment and Social Development Canada, formerly Human Resources and Skills Development Canada.

Foreign Agricultural Resource Management Services maintains administrative records of the reasons for repatriation of migrant farmworkers. We examined the records related to repatriation for medical purposes for 2001–2011. These data were publicly available because they were entered into evidence during the Human Rights Tribunal of Ontario hearing concerning the death of Ned Peart.⁸ The product of our request under the Ontario Freedom of Information and Protection of Privacy Act is included as Appendix 1. Names of repatriated workers were redacted from the public record. All available variables were manually transcribed into an Excel database (Microsoft, Redmond, Wash.). These included worker contract year, date of birth, country of origin, date of repatriation and reason for

continued on page 12

Figure 1



[The material presented in this portion of *Streamline* (pages 11-15) is supported by a grant from the Environmental Protection Agency, Office of Pesticide Programs, Grant # x8-83487601.]

■ Medical repatriation of migrant farm workers continued from page 11

medical repatriation. The reason for medical repatriation was captured as a 200-character free-text field in the raw data.

The number of arrivals of migrant farmworkers in Ontario per year was obtained from Foreign Agricultural Resource Management Services through a data request to Human Resources and Skills Development Canada.

Results

A total of 787 health repatriations occurred from 2001 to 2011. The average age of repatriated workers was 38.14 years (standard deviation 8.69 years) and more than two-thirds of repatriated workers were aged 30 to 49 years (Table 1). Nearly half (48.3%, n = 380) of repatriated workers returned to their home country of Mexico, and approximately a third (34.6%, n = 272) returned to Jamaica.

Over the 11 years of study, 787 of the 170,315 workers who arrived in Ontario were repatriated for health-related reasons; 4.62 (95% confidence interval [CI] 4.30–4.94) medical repatriations occurred for every 1,000 workers arriving (Figure 1). As the annual number of temporary migrant workers arriving in Ontario remained stable between 2001 and 2011, the rate of injuries is close to the crude number of repatriations. The highest rate of medical repatriation occurred in 2003 when 7.81 (95% CI 6.41–9.21) repatriations occurred for every 1,000 workers. Rates of repatriation generally decreased between 2003 and 2011, except in 2008 and 2009, when rates were 4.33 (95% CI 3.30–5.35) and 3.69 (95% CI 2.73–4.66) repatriations per 1,000 arrivals, respectively. The lowest reported rate of medical repatriations occurred in 2011, at 2.22 per 1,000 workers (95% CI 1.49–2.96).

We also examined the cumulative rate of medical repatriations based on workers' country of origin (Figure 2). Over the study period, the highest rate occurred among workers from Barbados: 9.62 (95% CI 6.25–13.00) medical repatriations for every 1,000 arrivals. The lowest rate occurred among Mexican workers: 4.38 medical repatriations per 1000 workers (95% CI 3.94–4.82).

The frequency of medical repatriation by each of the seven diagnostic categories is displayed in Figure 3. Migrant farmworkers were most frequently repatriated for medical or surgical reasons (41.3%, n = 325), for external injuries including poisoning (25.5%, n = 201) and for other identifiable reasons (17.3%, n = 136).

Cases coded in the category of "Other identifiable" were most often cases where the reason for repatriation indicated ill health, but

Figure 2

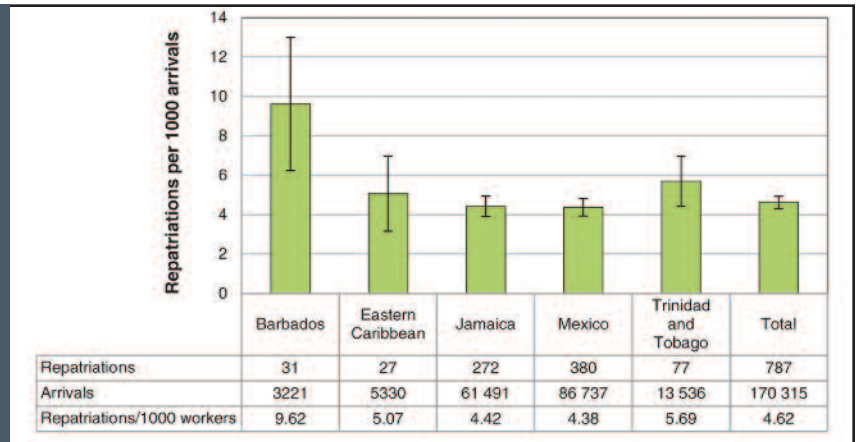
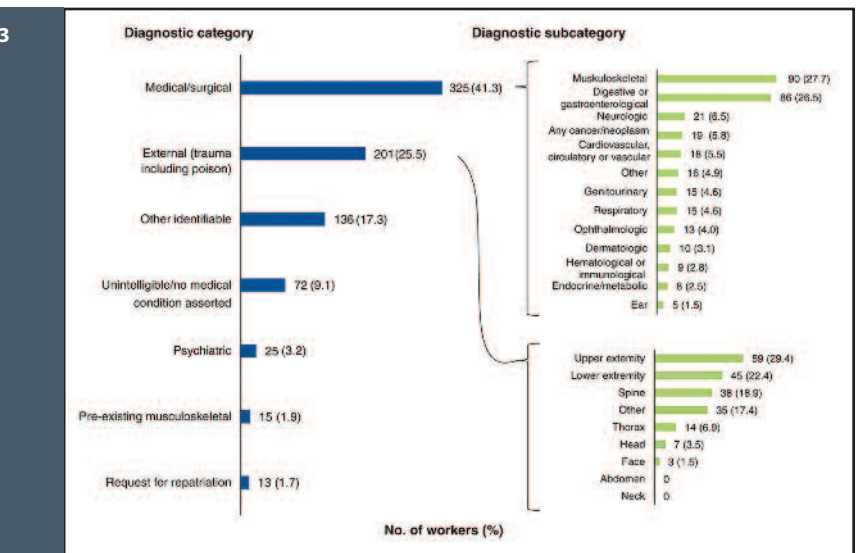


Figure 3



was too vague to categorize. Examples include comments such as "worker is ill," "worker has medical issue," or simply "injured." Seventy-two (9.1%) repatriations were coded as "Unintelligible/no medical condition asserted." For seven cases, no reason for repatriation was provided; in other cases, problems with family at home or "disagreement with management" were given as the reason for repatriation. Psychiatric cases represented 3.2 percent (n = 25) of repatriations and included reports of depression, anxiety, stress and, more generally, "mental illness." Of the 15 (1.9%) repatriations arising from pre-existing musculoskeletal injuries, seven were back-related and the remainder pertained to various pre-existing upper and lower extremity conditions. Only 13 (1.7%) of medical repatriations resulted from migrant farm workers' requests.

More than one-quarter (27.7%, n = 90) of the 325 medical/surgical repatriations resulted from musculoskeletal symptoms that were not identified as traumatic injuries, including back problems and both upper and lower limb conditions. A further quarter of medical/surgical repatriations (26.5%, n = 86) concerned

digestive and gastroenterological issues, such as stomach pain, hernia operation, or appendicitis. Among the 18 cases coded as cardiovascular, circulatory, or vascular-related, three were reported as "heart attack[s]." Another three medical repatriations were attributed to pregnancy.

Of the 201 repatriations coded as external injuries, 59 (29.3%) occurred in upper extremities. These injuries included muscle strains; injured, broken or severed fingers, hands, wrists and shoulders; as well as one partial amputation. The second largest category (n = 45, 22.3%) of external injuries resulting in repatriation were lower extremity injuries, such as sore or broken feet, ankles, or legs, as well as torn ligaments and groin strains. Among the 35 (17.4%) external injuries identified as "Other" were six cases of tobacco poisoning and four injuries related to motor vehicle collisions.

Interpretation

A total of 787 medical repatriations occurred

■ **Medical repatriation of migrant farm workers** continued from page 12

between 2001 and 2011. Most repatriated workers were aged 30 to 49 years. The highest rate of repatriations occurred in 2002 and 2003, and among workers from Barbados. During the study period, workers were most frequently repatriated for medical and surgical reasons, including musculoskeletal and gastrointestinal-related symptoms, and for external trauma, including poisoning.

The observed variations in rates of medical repatriation by country of origin may arise from the independent worker agreements between Canada and each of the providing nations. Workers from each country also work in similar but distinct agricultural contexts, with varied health risks, work conditions, and access to health services and other resources. Consular officials from the workers' various countries of origin may have different manners of intervening or advocating in medical repatriation cases.

This study adds a new dimension to the understanding of and available data sources for the health of migrant farmworkers. Its central strength is the use of a previously inaccessible set of employment data and a validated coding procedure to describe medical repatriation among migrant farmworkers. Medical repatriation has not previously been described in the Canadian medical or occupational health literature. Medical repatriation is at once an occupational health event, an international deportation and a termination of employment. There are perhaps no other Canadian occupational settings where workplace injuries and illnesses, such as those described in this data set, result in employment termination and deportation without further medical care or income security. The Canadian Labour Congress has identified repatriation provisions in Seasonal Agricultural Workers Program contracts as the employer's "bluntest tool to suppress workers' rights."⁷

Comparison with other studies

Our study reinforces existing literature from Canada and the United States regarding the range of health conditions associated with occupational hazards among migrant farmworkers, including injury; musculoskeletal, respiratory, infectious, and dermatological disease; mood disorders; and environmental illnesses.¹⁰⁻¹³ Toxic exposures, lack of occupational health regulation and enforcement, frequent use and poor maintenance of hazardous equipment, poor housing conditions, increased occupational risk taking, and chronic stress have been identified in this population.¹⁴⁻¹⁸ Our data align with existing studies of the health of migrant farmworkers by showing that injuries, musculoskeletal and gastroin-

testinal problems account for the majority of illnesses in this population. Ontario data over a three-year period (n = 888) showed that the top reasons migrant farmworkers present to an emergency department near their workplaces include injury, gastrointestinal, musculoskeletal, respiratory, dermatologic, urinary, and ophthalmologic conditions.¹⁹

Our study extends the existing literature by identifying the health conditions cited as the reason for a termination of employment and health-related repatriation. Migrant farmworkers in Canada face multiple barriers to accessing health care including workers' reluctance to seek this assistance; lack of independent transportation; language and cultural differences; lack of knowledge about the health care system; long work hours and limited clin-

ic hours; and repatriation following illnesses or injuries.¹³ Fear of employers or not wanting to lose paid work hours, as well as inadequate knowledge about how to make a workers' compensation claim, have also been cited as common factors impeding access to care.⁶

Conclusion and future directions


This study offers new epidemiologic and occupational health insights into the medical repatriation of workers employed in Ontario under the Seasonal Agricultural Workers Program. From 2001 to 2011, 787 migrant farmworkers were repatriated to their country of origin for medical reasons. The predominant medical reasons for these repatriations include trauma,

continued on page 15

ENVIRONMENTAL AND OCCUPATIONAL HEALTH PESTICIDE RESOURCES


MCN has developed a number of clinical tools and patient education resources to address the prevention, recognition, and management of pesticide exposures. For more information or to download these resources, visit: <http://www.migrantclinician.org/pesticides>

CLINICAL RESOURCE



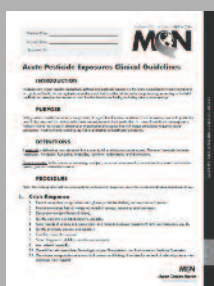
Cholinesterase Testing Protocol Algorithm

CLINICAL RESOURCE



Pesticide Exposure Assessment

CLINICAL RESOURCE



Acute Pesticide Exposures Clinical Guidelines

CLINICAL RESOURCE



Cholinesterase Testing Protocols for Healthcare Providers

PESTICIDE COMIC BOOK PATIENT EDUCATION



Lo Que Bien Empieza... Bien Acaba

PESTICIDE COMIC BOOK PATIENT EDUCATION



Poco Veneno... ¿No Mata?

PESTICIDE COMIC BOOK PATIENT EDUCATION



Aunque Cerca... Sano

From the Fields to the Exam Room: Migrant Clinicians Network's Program for Occupational and Environmental Health

Amy K. Liebman, MPH, Director of Environmental and Occupational Health, Migrant Clinicians Network
Kerry Brennan, Environmental and Occupational Health Program Associate, Migrant Clinicians Network

[Editor's Note: The following is an excerpt from the recent report issued by Migrant Clinicians Network. Read more about the report's findings in the accompanying article.]

From the Fields to the Exam Room: Integrating the Recognition, Management and Prevention of Pesticide Poisonings into the Primary Care Setting is a national environmental and occupational health (EOH) program supported through a multi-year cooperative agreement between Migrant Clinicians Network (MCN) and the US Environmental Protection Agency (EPA), Office of Pesticide Programs (OPP) as part of the EPA National Strategies for Healthcare Providers: Pesticide Initiative. The long-term goal of the project is to achieve improved health and environmental justice for communities at risk for overexposure to pesticides through outreach, technical assistance, and training, to increase knowledge and awareness of environmental and occupational health risks.

The primary objective in 2014 was to partner with at least one health center to form an MCN Environmental and Occupational Health Center of Excellence, incorporating key practice skills and changes in clinical systems to integrate EOH into their primary care practice. In 2014, MCN initiated two partnerships with health centers or continued partnerships with three health centers to achieve the following:

- Facilitated four onsite clinical trainings, three national webinars, three targeted webinars, and three conference sessions to improve the recognition and management of pesticide exposures;
- Provided patient education and clinical resources to increase awareness of surveillance mechanisms and EOH exposure risks;
- Initiated the integration of changes to clinical systems including intake, screening, outreach and education tailored to the needs of three partner health centers;

- Provided ongoing technical assistance and support to three EOH Centers of Excellence.

MCN also achieved the following milestones in year four:

- 620 encounters and 1,238.08 hours of training and technical assistance;
- 27,605 clinical resources distributed;
- 95,875 unique hits to and downloads from MCN's pesticide and EOH web pages;
- 754 clinicians and stakeholders trained via onsite workshops, national webinars and national and regional conferences;
- More than 300 Continuing Education Units (CEU) awarded to clinicians.

For more information on MCN's Environmental and Occupational Health program initiatives, please visit <http://www.migrantclinician.org/issues/occupational-health.html> or write to us at kbrennan@migrantclinician.org. ■



Training participants from MCN's Environmental and Occupational Health webinars and onsite trainings came from across the United States.

New findings show clinicians don't know what to do in pesticide overexposures

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

A recent report by Migrant Clinicians Network (MCN) demonstrated the important and ongoing need to train clinicians in the recognition and management of pesticide exposures — and that MCN's programs are directly addressing this need. In the report, prior to MCN's onsite trainings, nearly half of the 101 clinicians polled stated they had one hour or less of education in environmental and occupational health; 70 percent had four hours or less. Moreover, there continues to be a dearth of knowledge regarding requirements for reporting pesticide exposures. Half of the 101 clinicians questioned during MCN's onsite trainings were unaware of the laws in their state requiring the reporting of pesticides.

These findings were released as part of MCN's annual report to the Environmental

Protection Agency (EPA) on its national environmental and occupational health program entitled, *From the Fields to the Exam Room: Integrating the Recognition, Management and Prevention of Pesticide Poisonings into the Primary Care Setting*.

MCN's program provides extensive training in environmental and occupational health for primary care providers to address just such shortcomings in the clinic. MCN partners with health centers across the country to assist them in incorporating key practice skills and changes in clinical systems, to integrate environmental and occupational health into their primary care practice.

"Clinicians often come to the table unprepared to recognize and manage work-related health conditions," said Ed Zuroweste, MD, MCN's Chief Medical Officer. "Given that

migrants work in some of the most hazardous industries like agriculture and construction, it is critical that clinicians caring for this population have the tools to provide quality care."

MCN also provides ongoing training and technical assistance to health centers, as well as extensive EOH-specific tools and resources on their website that are open to the public. MCN's online pesticide incident reporting map, for example, provides state-specific pesticide reporting requirements, contact information for reporting, and additional information like Worker Protection Standards Enforcement Agency information and legal services referral for violations.

"This report highlights the important work that MCN is doing to address a real need in migrant health," Dr. Zuroweste added. ■

■ Medical repatriation of migrant farm workers continued from page 13

musculoskeletal, and digestive or gastroenterologic conditions. Neurologic, psychiatric, cancerous, and cardiovascular conditions also figured prominently in this study.

By describing the epidemiology of medical repatriation, this study provides an essential instrument to understand and address this complex occupational health phenomenon. Future research and interventions might aim to identify the health outcomes of migrant farmworkers following medical repatriation and to enhance data quality and reliability and the validity of how medical repatriations are documented and coded. The medical repatriation of migrant farmworkers merits further examination as a global health equity concern.

References

- Labour market opinion statistics — annual statistics 2012, Table 9: Number of temporary foreign worker positions on positive labour market opinions (including accelerated labour market opinions) under the Agricultural Occupations, by location of employment. Ottawa: Employment and Social Development Canada; 2012. http://s3.amazonaws.com/migrants_heroku_production/datas/1215/LMO_Statistics_HRSDC_original.pdf?1384392810. Accessed 2014 Sept. 8.
- Earle-Richardson G, Jenkins P, Slingerland D, et al. Occupational injury and illness among migrant and seasonal farmworkers in New York State and Pennsylvania, 1997–1999: pilot study of a new surveillance method. *Am J Ind Med* 2003;44:37-45.
- McLaughlin, J, Hennebry, J, Haines, T. Paper versus practice: occupational health and safety protections and realities for temporary foreign agricultural workers in Ontario. *Perspectives interdisciplinaires sur le travail et la santé* 2014; 16-2. <http://pistes.revues.org/3844>. Accessed 2014 Sept. 8.
- Agreement for the employment in Canada of seasonal agricultural workers from Mexico – 2013. Ottawa: Employment and Social Development Canada; 2013. Available: www.esdc.gc.ca/eng/jobs/foreign_workers/agriculture/seasonal/sawpmmc2013.pdf. Accessed 2014 Sept. 8.
- McLaughlin, J, Hennebry, J. Pathways to precarity: structural vulnerabilities and lived consequences for migrant farmworkers in Canada. In: Goldring L, Landolt P, editors. *Producing and negotiating non-citizenship: precarious legal status in Canada*. Toronto: University of Toronto Press; 2013.
- Hennebry JL, Preibisch K. A model for managed migration? Re-examining best practices in Canada's Seasonal Agricultural Worker Program. *International Migration* 2012;50:e19-40.
- Flecker K. Canada's Temporary Foreign Worker Program: model program — or mistake? Ottawa: Canadian Labour Congress; 2011. <http://www.canadianlabour.ca/sites/default/files/pdfs/model-program-or-mistake-2011-en.pdf>. Accessed 2014 Sept. 8.
- Peart v. Ontario (Community Safety & Correctional Services), Exhibit 8, Tab 141, file TR-0680–09. Toronto: Human Rights Tribunal of Ontario; 2011.
- Landis JR, Koch GG. The measurement of observer agreement for categorical data. *Biometrics* 1977;33:159-74.
- Hennebry J, Preibisch K, McLaughlin J, et al. Health across borders — health status, risks and care among transnational migrant farm workers in Ontario. Toronto: CERIS — The Ontario Metropolitan Centre; 2012. www.ceris.metropolis.net/wp-content/uploads/2012/03/Health-across-Borders.pdf. Accessed 2014 Sept. 8.
- Hansen E, Donohoe M. Health issues of migrant and seasonal farmworkers. *J Health Care Poor Underserved* 2003;14:153-64.
- Brower MA, Earle-Richardson GB, May JJ, et al. Occupational injury and treatment patterns of migrant and seasonal farmworkers. *J Agromedicine* 2009;14:172-8.
- Pysklywec M, McLaughlin J, Tew M, et al. Primer: Doctors within borders: meeting the health care needs of migrant farm workers in Canada. *CMAJ* 2011;183:1039-42.
- Gustafson CJ, Feldman SR, Quandt SA, et al. The association of skin conditions with housing conditions among North Carolina Latino migrant farm workers. *Int J Dermatol* 2014;53:1091-7.
- Quandt SA, Jones BT, Talton JW, et al. Heavy metals exposures among Mexican farmworkers in eastern North Carolina. *Environ Res* 2010;110:83-8.
- Swanberg JE, Clouser JM, Westneat S. Work organization and occupational health: perspectives from Latinos employed on crop and horse breeding farms. *Am J Ind Med* 2012;55:714-28.
- Clingerman EM, Brown A. Stress in migrant farmworkers during premigration. *Biol Res Nurs* 2012;14:27-37.
- Preibisch K, Hennebry J. Temporary migration, chronic effects: the health of international migrant workers in Canada. *CMAJ* 2011;183:1033-8.
- McLaughlin J, Hennebry J, Furet A, et al. Migrant worker health project: resource guide for health-care providers [website]. Waterloo (ON): Migrant Worker Health; 2012. www.migrantworkerhealth.ca/relinks/Booklet.pdf. Accessed 2014 Sept. 8.
- Preibisch K. Foreign workers in Canadian agriculture: not an all-male cast. *FOCALPoint* 2007;May-June:8-10. ■



Migrant Clinicians Network

P.O. Box 164285 • Austin, TX 78716

Non Profit Org.
U.S. Postage
PAID
PERMIT NO. 2625
Austin, TX

MIGRANT CLINICIANS NETWORK



Acknowledgment: *Streamline* is published by Migrant Clinicians Network (MCN). This publication may be reproduced, with credit to MCN. Subscription information and submission of articles should be directed to:

Migrant Clinicians Network

P.O. Box 164285

Austin, Texas, 78716

Phone: (512) 327-2017

Fax (512) 327-0719

E-mail: jhopewell@migrantclinician.org

Kristine McVea, MD

Chair, MCN Board of Directors

Karen Mountain, MBA, MSN, RN

Chief Executive Officer

Jillian Hopewell, MPA, MA

Director of Education and Professional Development, Editor-in-Chief

Claire Hutkins Seda

Writer, Managing Editor.

Editorial Board — Matthew Keifer, MD, MPH, National Farm Medicine Center (NFMC), Marshfield Clinic Research Foundation, Marshfield, WI; Kim L. Larson, PhD, RN, MPH, East Carolina University, Greenville, North Carolina

calendar

May 5-7, 2015

2015 National Farmworkers Health Conference

San Antonio, TX

www.nachc.com/

June 1-3, 2015

The 2015 Southwest Latino HIV/Hepatitis C Conference

South Padre Island, TX

www.Latinosandhiv.org

June 20th, 2015

Health Champions: Reducing Disease to Improve Health

Granger, WA

<http://goo.gl/RJm1h>

June 22-25, 2015

10th Summer Institute on Migration and Global Health

Oakland, CA

www.Regonline.co/MigrantHealth2015