

streamline

The Migrant Health News Source

The Management of End Stage Liver Disease in the Correctional Setting

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Editor's note: The following article outlines recommendations for the diagnosis and treatment of Hepatitis C in correctional facilities. While there are some clear differences between the mobile underserved and correctional populations, there are many similarities in the challenges to detecting and treating Hepatitis C in these two groups. As with many health conditions, statistics on Hepatitis in the migrant population are scarce; however, we do know that it poses a significant health care challenge. Clinicians in Migrant/Community Health Care Centers are at the forefront of diagnosis and treatment of Hepatitis in migrant populations.

Approximately one-third of hepatitis C (HCV) infected persons in the United States passed through jail or prison facilities in 1997.¹ In some states, the prevalence of chronic HCV infection among incoming prisoners is as high as 49%

Ten to 15 percent of those with HCV will develop cirrhosis within 20 years of initial infection.^{6,7} Numerous studies have demonstrated that coinfection with HIV increases the rate of progression to cirrhosis.

Chronic liver disease and cirrhosis kills more than 25,000 people in the US annually⁹ and is among the 10 leading causes of death for White males, Hispanics, and Native Americans.¹⁰ In patients with HCV and cirrhosis, the five-year death rate is approximately 15%.¹¹

This article

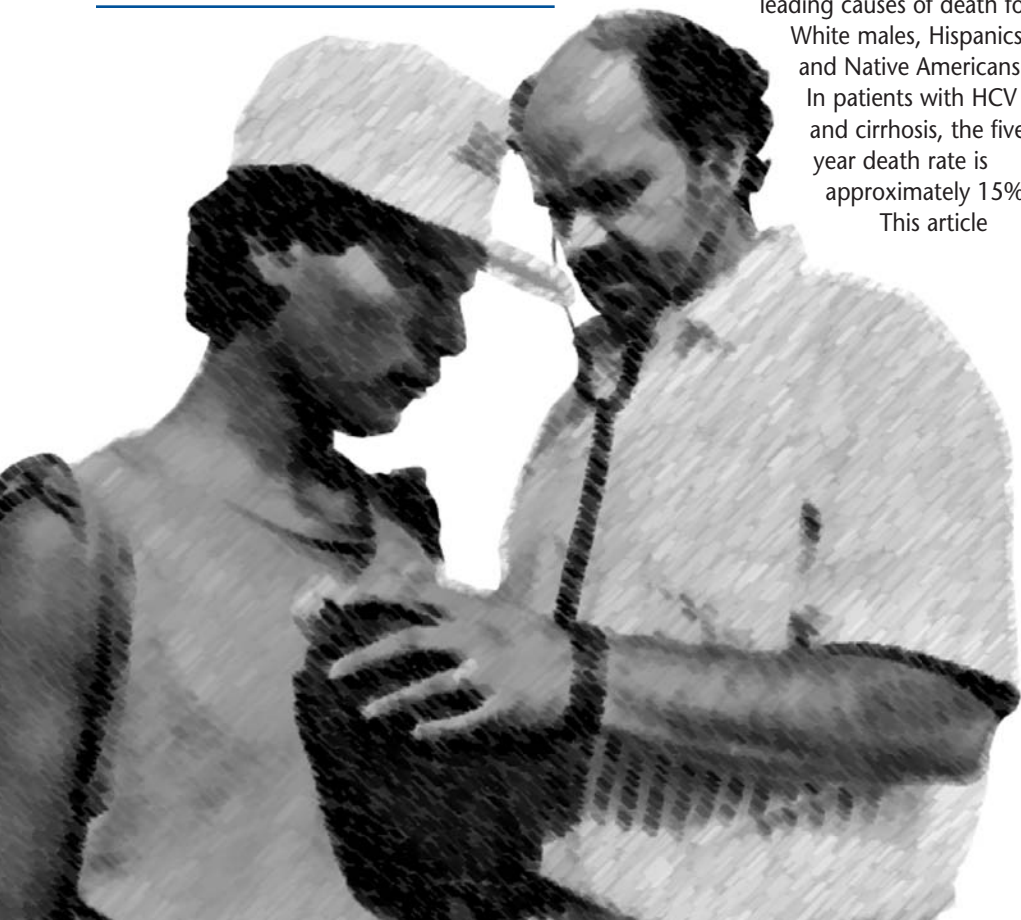
focuses on the treatment of End Stage Liver Disease (ESLD) in the correctional setting, primarily among patients with chronic HCV.

Chronic Hepatitis Treatment - Some Patients Left Behind?

Advances in combination therapy have improved clinical options for some patients with chronic HCV. However, correctional health providers are still confronted with many patients with cirrhosis and ESLD. Reasons for this include:

- (1) Even under ideal treatment conditions, sustained viral response (SVR) rates for the current anti-HCV combination therapy (pegylated interferon plus ribavirin) are less than 50% for genotype 1, and less than 80% for other less common genotypes.¹³
- (2) Many people cannot tolerate anti-HCV combination therapy because of side effects, co-morbidities (including psychiatric issues), or other factors.
- (3) Coinfection with HIV is estimated to reduce SVR rates for anti-HCV combination therapy by 20 to 30%, though some of this difference may be due to adherence issues.¹⁵
- (4) Prisoners in the US are disproportionately African American, and HCV treatment response rates are lower among African Americans than among other racial groups.
- (5) Some healthcare systems do not routinely offer HCV testing or treatment for inmates.

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Diagnosis of Viral Hepatitis and Cirrhosis

The first step in the diagnosis of liver disease due to viral hepatitis is to offer antibody screening for hepatitis B and C (HBV, HCV). Some clinicians recommend targeted screening based upon risk factor histories. In many correctional systems, the prevalence of chronic hepatitis among inmates is sufficiently high and the reliability of risk factor history information is sufficiently low that all inmates should be offered testing for both viruses.

Unlike HBV infection, 60-85% of those with HCV infection will develop chronic disease.²⁰ Chronic infection with HCV can be confirmed by detection of HCV RNA in the plasma.

Among those with chronic viral hepatitis, no single test or panel is sufficient to accurately portray disease severity. A basic lab assessment for patients with liver disease should include complete blood counts (CBC), serum aminotransferase levels (ALT and AST), bilirubin, albumin, prothrombin time/INR, and platelet count. Serial measurements over time offer a more complete portrait of the severity progression of the disease than individual assays. Elevated AST/ALT values reflect inflammation, while prolonged INR and decreased albumin can reflect decreased hepatic function. Elevated direct bilirubin may be indicative of cirrhosis or bile duct obstruction; total bilirubin levels over approximately 2.5 mg/dl are associated with jaundice. Anemia can be due to variceal bleeding, while thrombocytopenia can result from bleeding or sequestration in an enlarged spleen.

Physical examination of patients with advanced liver disease may detect a firm and enlarged liver, though in very advanced cirrhosis, the liver may decrease in size. External physical examination may also detect excess fluid in the abdomen by palpating the flanks and feeling for a shifting wave of fluid. Imaging techniques such as ultrasound, CT scan, and MRI can reveal ascites, an enlarged spleen, reversed portal vein flow, and hepatocellular carcinoma (HCC).

Liver biopsy is the single best technique for determining disease progression, and is the definitive means of confirming cirrhosis and assessing its severity.²¹ Liver biopsy has become a contentious issue in corrections because of cost and the high number of patients with chronic viral hepatitis. Despite advances in noninvasive monitoring tech-

Signs and Symptoms of Cirrhosis

Many patients with cirrhosis have no symptoms, and are only determined to be cirrhotic by physical examination and liver biopsy. When signs or symptoms are present, they can include:

- enlargement of the liver
- loss of appetite
- unusual weight loss or weight gain
- nausea and vomiting
- fatigue
- jaundice
- enlargement of the spleen
- abdominal swelling
- swelling of the legs
- amenorrhea (absence of menstrual periods)
- intense itching
- vomiting blood
- palmar erythema (reddish and blotchy palms)
- loss of body hair
- spider angiomas (pinhead-sized red spots on the skin with tiny visible blood vessels, blanch with pressure)

niques, biopsy remains the gold standard for the assessment of severity of cirrhosis.^{22,23,24}

Most of those with serially “normal” ALTs will have minimal inflammation, are likely to be to be slow progressors, and may not need to undergo biopsy. Just as HCV treatment costs may be reduced by price negotiation²⁵, it may be possible to reduce biopsy costs by proactively contracting for biopsies based on HCV prevalence in the facility or system in question. Correctional health providers in Pennsylvania have reportedly reduced biopsy costs to as low as \$400 per patient.²⁶ At the California Medical Facility in the California DOC, on site biopsy costs are less than \$300 per patient.²⁷

Pathophysiology and Complications of Cirrhosis

Damage to the liver due to chronic alcohol or other toxins, infection, obstruction, or heart failure can lead pathologic changes including fibrosis and the formation of regenerative nodules. These pathologic changes are termed cirrhosis, and can result in a variety of clinical manifestations. When the liver is cirrhotic but still able to perform most basic functions, cirrhosis is referred to as “compensated”. Further loss of functioning hepatocytes can result in “decompensated” cirrhosis, manifest by coagulopathy, jaundice, and edema. Extensive fibrosis can cause portal hypertension, splenomegaly, and gastroesophageal varices. In more severe cases, patients may develop excess fluid within the peritoneal cavity (ascites), spontaneous bacterial peritonitis, and/or encephalopathy. Up to 5% of those with cirrhosis will develop HCC. Deaths associated with HCV are more likely to be due to complications of decompensated cirrhosis such

as variceal bleeding, encephalopathy, and peritonitis, than to HCC.²⁸

Prevention and Treatment of Complications

The prevention and treatment of complications associated with ESLD can be challenging for even experienced generalist physicians. In general, the management of those with ESLD should be done in consultation with a gastroenterologist or hepatologist. In one recent study, hospitalized patients with decompensated cirrhosis managed by a generalist in consultation with a gastroenterologist fared better than patients managed by generalists alone. Better outcomes included shorter length of hospitalization, lower cost of hospitalization, lower rates of hospital readmission, and improved survival.³¹

Patients with chronic hepatitis should be protected from further hepatic insult. Those who are not immune to hepatitis A and hepatitis B should be vaccinated.³² Those with liver disease should receive annual influenza vaccinations and a pneumococcal vaccine. Patients should avoid hepatotoxic medications whenever possible. Large doses of acetaminophen should be avoided, however, low doses (less than 2,000 milligrams per day) are generally well-tolerated. Non-steroidal anti-inflammatory drugs such as ibuprofen (Advil®), naproxen (Aleve® or Naprosyn®), or aspirin should be used with caution both because of hepatotoxic potential and the risk for bleeding. The dosage of medications that are hepatically metabolized may need to be adjusted. Because of the increased prevalence of HIV infection among those with viral hepatitis, patients should also be encouraged to test for HIV.

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Alcohol

All patients should be educated about the extreme importance of avoiding alcohol. Even moderate ingestion of alcohol hastens the progression of liver disease in those with cirrhosis. Correctional physicians should link their patients to drug and alcohol abuse treatment programs both within the correctional system and at the time of release.

Nutrition

Maintaining adequate nutrition for patients with advanced liver disease can be difficult.

Adequate dietary protein is important for patients with ascites and for repairing lost muscle mass. However, excess protein may pose a risk for encephalopathy. In those prone to encephalopathy, vegetable proteins may pose fewer risks than animal proteins. Iron supplementation and excessive sodium intake should be avoided in those with cirrhosis. Patients with ascites may require fluid and salt restriction.

Variceal bleeding

Beta-blockers can reduce heart rate, lower

portal vein pressure, and reduce the threat of variceal bleeding. Patients with diabetes, asthma, emphysema and chronic bronchitis may be unable to tolerate beta-blockers. Options for treatment of variceal bleeding and prevention of recurrence also include endoscopic sclerotherapy, vasoactive drugs, and band ligation. Surgical shunts and Transjugular Intrahepatic Portosystemic Shunt (TIPS) are other options to eliminate variceal bleeding. TIPS is a less invasive pro-

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MCN Takes Pesticide Education to the Home

Exposure to pesticides is not only an occupational risk for farmworkers while working in the fields. Farmworkers and their families are also vulnerable to pesticide exposure at home. As stated by Thomas Arcury and Sara Quandt in a recent article in *The Lancet* "Advocates for social justice should help farmworker families reduce their exposure to pesticides at home as well as at work. Farmworkers need access to safe housing located away from agricultural fields, with adequate bathing facilities and laundry equipment to remove pesticides from work clothes. Workers need sufficient clothes to wear clean work clothes daily. Occupational hygiene procedures should be changed to ensure that all farmworkers receive the full pesticide safety training required by the US

Environmental Protection Agency, and that all can shower and change into clean clothes at work. Agricultural practices must change so that pesticides applied to fields do not enter homes." (Arcury, T and Quandt, S. "Pesticides at Work and at Home: exposure of migrant farmworkers". *The Lancet*, Vol 362, December 13, 2003, p.2021)

Several studies suggest that children from agricultural families are exposed to higher levels of pesticides than those whose parents do not work in agriculture and do not live close to farms. (Simcox et. al. 1995, Fenske et. al. 2000). Pesticides may be tracked into their homes by farmworker parents or drift into their homes when nearby fields are sprayed. (Thompson et. al., 2003; Eskenazi, 1999). Additionally some children are exposed to pesticides while playing or working in the fields and when pesticides are used to their homes. The recent study by Arcury and Quandt suggests the need to both strengthen worker protection and reduce exposures in the home. (2003).

MCN has been awarded a grant from the Paso del Norte Health Foundation to take pesticide education to the home in order to help minimize children's exposure to pesticides and emphasize ways to successfully promote safety information in the farmworker community. In partnership with the La Clinica de la Familia and the Southern Area Health Education Center, MCN is leading a project to develop and pilot a pesticide education training program targeting farmworker families southern New Mexico. The project will utilize *promotoras de salud* to take the education to the homes. To help reinforce pesticide safety messages, the *promotoras* will use the comic book *Aunque Cerca...Sano*, developed by in 2002 by MCN, Farm Safety 4 Just Kids with support from the National Children's Center for Rural and Agricultural Health and Safety.

In March MCN trained 16 *promotoras de salud* during a day-long training in Las Cruces, New Mexico. The *promotoras* will begin their educational efforts in April. ■

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cedure in which the shunt is inserted through a catheter.

Ascites

Patients with ascites may require a reduced salt diet, reduced fluid intake, and diuretics. Spironolactone in doses of 100-400 milligrams per day can be used to achieve diuresis. In those who fail to respond to diuretics, fluid may be drained with a catheter or plastic drainage tube inserted into the abdominal wall (paracentesis). Paracentesis should be accompanied by albumin infusion to prevent circulatory dysfunction and other complications.³³ TIPS is also an option in ascites patients for whom paracentesis is ineffective, intolerable, or contraindicated.³⁴

Bacterial Peritonitis

Patients with SBP may present with fever, hypotension, abdominal discomfort, and/or encephalopathy. Often the clinical findings are very subtle, and the clinician must act presumptively to prevent death of the patient. Gram stain and culture of ascitic fluid often fails to demonstrate the presence of an organism. To diagnose SBP, ascitic fluid should be examined by microscope and inoculated directly into blood culture bottles. An ascitic fluid neutrophil count of 250 polymorphonuclear cells/mm³ is diagnostic of SBP.³⁰ In suspected cases, treatment should be initiated with cefotaxime, ceftriaxone, or a fluoroquinolone. Patients who have already had a previous episode of SBP are at high risk for recurrence, and should be provided prophylaxis with trimethoprim-sulfamethoxazole, ciprofloxacin, or norfloxacin.

Encephalopathy

Precipitating factors for encephalopathy in advanced liver disease can include gastrointestinal bleeding, excess dietary protein, constipation, or infection. The goal of treatment for encephalopathy is to lower the level of toxic substances affecting the brain by reducing or eliminating dietary protein and removing nitrogenous material from the gut, often by using lactulose.³⁵

Fulminant hepatic failure is manifest as encephalopathy, worsening jaundice, gastrointestinal bleeding, sepsis, coagulopathy, hypoglycemia, renal failure, and electrolyte abnormalities. Patients with fulminant hepatic failure should be managed in the ICU setting, and should urgently be evaluated for candidacy for liver transplant.³⁶

Transplantation

More than 3,000 liver transplants are per-

formed annually in the US. For patients with cirrhosis, the two commonly used indices of liver disease severity are Child-Turcotte-Pugh (CTP) and Model for End Stage Liver Disease (MELD). CTP and MELD are designed to direct organ allocation to liver transplantation candidates based on the severity of disease. CTP score is determined using albumin, bilirubin, prothrombin time (INR), ascites, and hepatic encephalopathy. MELD score is determined using bilirubin, creatinine, and INR. MELD uses a wider range of assay values and a more complicated formula than CTP. A MELD calculator is available online at the website of the United Network for Organ Sharing: www.unos.org. Every correctional system should have policies in place that address the appropriate evaluation and referral of selected patients for consideration for transplant.

Anti-HCV Maintenance Therapy

There is little clinical basis for recommendations about continued anti-HCV therapy in patients with advanced cirrhosis. Nevertheless, some studies have shown that patients with compensated cirrhosis can achieve high rates (43%) of SVR on combination therapy,³⁷ and that anti-HCV therapy may cause histological improvement even in patients who are virological non-responders.³⁸ Whether or not treatment of compensated cirrhotics will translate into decreased morbidity, improved quality of life, or prolonged survival remains to be seen.

Anti-HCV treatment of patients with decompensated cirrhosis may raise significant safety issues and should not generally be recommended except in the setting of clinical trials.

Hepatocellular Carcinoma (HCC)

Chronic HCV infection is a major risk factor

for HCC. The risk for HCC is greatest among patients with at least 20 years of HCV infection, cirrhosis or advanced fibrosis, male sex, older age, HBV coinfection, and heavy alcohol use.³⁹ One to 6% of cirrhotic patients develop HCC annually.⁴⁰ Screening techniques for HCC in cirrhotic patients are serum alpha-fetoprotein (AFP) testing (twice yearly) and hepatic ultrasound or CT.

Surgical liver resection and liver transplant are the main treatment strategies for HCC. Alternative approaches include percutaneous alcohol injection, arterial chemoembolization, or radiofrequency ablation.⁴¹

Palliative Care, Compassionate Release

Patients with ESLD, especially those who are not candidates for liver transplantation, should be considered for hospice care. Patients dying with ESLD report a high pain burden, comparable to that of patients dying with lung and colon cancer.⁴² Physicians working with such patients should be aware of available palliative care options, and should initiate compassionate release or medical parole proceedings where appropriate.

Conclusions

Over the past 20 years, correctional health-care providers have become increasingly important in our nation's response to tuberculosis and HIV. With one-third of HCV-infected individuals in the US passing through our jails and prisons, correctional clinicians are now faced with a new challenge. As we become experts in the antiviral treatment of those with chronic hepatitis, we must also be cognizant of the management of those with ESLD. By doing so, we can decrease ESLD associated morbidity and prolong the lives of our patients suffering with this serious illness. ■

MCN Diabetes Program Announces its Latest Monograph: Track II: Continuous Diabetes Care for Migrant Workers.

The Track II monograph is a bilingual resource for clinicians and others interested in learning more about MCN's Track II project. It covers the background of the project and how it helps migrant workers and their health care providers. If you have worked with, are interested in working with, or just want to know more about the Track II project, the monograph is the ideal resource. To order the monograph, contact Carmel Drewes, Diabetes Program Manager, by e-mail: carmel@migrantclinician.org, or by phone at 512-327-2017.



MCN Practicum: A Report from the Field

Melissa Alvarez PA-C

The New Provider Practicum in Migrant Health is a program that provides for a four-month working and learning experience in a migrant health center for new health care professionals. New Providers are nurse practitioners, physician assistants, nurse-midwives, and, most recently, dental hygienists, who have completed the training program for their profession and have an interest in working with migrant farmworkers. The purpose of the program is to increase the sensitivity and understanding of migrant health care issues for the New Providers as they consider careers working with underserved populations. The following is a snapshot of one participant's experience as she discovers the challenges and joys of working in a Migrant/Community Health Center setting.

During my fellowship while I was working with the Rural Health Team, I met the Migrant Education liaison at one of the rural schools we visited. I have gone out on several home visits with her to meet many of the farm-working families she works with. Some are patients of the rural health team. Most are not, due to lack of transportation. When possible she drives them to appointments.

Today we went to pick up a family to drive them to an appointment for a four-year-old boy with a psychiatrist from a state

agency that works with the school. I am told he has been put in a preschool class since they knew the child has many difficulties with language, comprehension and behavioral issues. The teachers say they were unable to help him in a group setting and feel he will not be able to learn in a traditional classroom. My friend comments that it has taken nearly a year to get this evaluation set up.

It is an hour and a half from Phoenix to reach the school where I meet my friend this morning. The school is new. As my friend

gives me a tour, we walk out the back to the playground, monkey bars and swings in the sandy ground with the backdrop of the nuclear plant spewing billows of exhaust becoming the clouds above. We leave the school and drive an hour through the desert. What used to be land for cattle has turned into many empty stretches of sand and harsh ground, not yet planted or developed or maybe left and forgotten as are some of the people who call this area home.

It is cold this morning and at the edge of most fields along the way are clusters of campers, pieced together trailers and small houses, each the size of a standard garage. We drive by one cluster of abandoned homes tucked at the edge of a field near a power plant. The windows are broken, rusted appliances and broken down vehicles lie outside. My friend tells me this house is not abandoned. It is occupied by many single male farmworkers. We stop across the street from rows of soil sparkling. I get out and walk closer; it isn't what I expected. Out of the ground, crystallized structures jutting out, like opened raw gemstones or rock candy. The pesticides in the ground have frozen in formations at the surface with the cold. Fields such as these surround homes

and are the playing ground of children in these communities.

We continue, past several small towns and run out of road. We turn on a dirt road that follows a cut cotton field to another cluster of trailers. Three dogs and several chickens come out to greet us. A very round pudgy boy is walking from the trailer with his mom. His younger sister trails behind chasing the animals. His mother, "Juanita" tells me they have lived in the area on and off for eight years. Her husband and her older three children used to live in Watsonville, California. She says she used to get up at three in the morning to make food to sell to the workers in the fields, many of which left families behind. It worked for them, she says because they could fit the small children in the truck as they delivered and sold the food. They lived with a cousin and four other families in one home. As the children grew, it became more difficult and they moved to Arizona. She feels lucky that the family has their own trailer now.

We stop at another cluster of trailers; my friend is worried about a few children who have not shown up to school. A few women and their children step out. One is a toddler, with a swollen forearm covered in a white thick paste. A bee stung him again, his mother says. One of the older boys has his ear taped with crusted yellow cotton on a swollen auricle standing out from his head. Nearby is a five-year-old girl who isn't able to speak due to a deformity of her tongue. She was seen at the county hospital I am told, but the \$2,400 operation was out of the family's reach.

Finally we arrive at another school, new to Juan. He immediately is frightened. Screaming, he lies on the ground refusing to enter the building. Once we are able to get him in, he runs around wildly when he sees all the other children. We are escorted to the psychiatrist, a very tall composed man sitting behind a desk. As he speaks to the mom another aide chases Juan around the room as he gets into everything he can reach, including the lights and the door out to the hall. Midway through the appointment, Juan runs in the room, ignoring all attempts the doctor makes to engage him. The psychiatrist finally rises from his desk and joins the chase through the halls. Several minutes later the large man returns, panting and out of breath. We smile and see one door is now locked and the other is guarded to keep Juan from running away. The doctor agrees to get help for Juan and writes his orders. The drive back was much quieter.

As we are leaving Juan's trailer four women in the same complex of trailer homes wave us down. They are upset and complain that a bus driver dropped one of

their young girls off early. The girl was left alone while the families were still working in the fields and no one was home. This frightened the little girl. She was found walking to a friend's home three miles away. The women are concerned since one child was killed walking on the road last year, another disappeared and others have been discovered to be pregnant as young as twelve years old. They go on, each adding another story.

Another woman carrying a baby joins the group. She is concerned about a neighbor who has been struggling to support her three children after her husband was put in jail. One of the other women describes how he came after her onto the field with his car as she was picking melons. He beat her in front of everyone. That is how he was finally put in jail, she says, by the farmer, because he destroyed the field and the crop. She will be evicted next week, her neighbor says, unable to pay the rent. The farmer already told her she must move or he will have the police escort her and her children, but she says she has nowhere to go.

Driving back from dropping off the family and talking with the neighbors, my friend tells me more about the women I have met today. As we continue, we drive in silence. In my mind I keep hearing, "...nowhere to go." Sometimes when I am seeing patients, I think the only difference between some of these women and me is that my grandparents came here sooner. They have not had the same opportunities that most of us have

had. I wonder what the conditions were like for my grandparents. Has anything changed?

Seeing where they live, their living conditions and meeting the people seems to override the rush of patients seen in the clinic, when there are times it is hard to remember who was seen when the day is only half over. The monotony of coughs and colds may only cover the underlying story that often is only hinted at with the question, "Is there anything else you needed today?" with your hand on the knob and hoping not to get too behind today.

However, a visit to the clinic is not even a possibility for many of these patients. There is no transportation into town and most do not own cars. Their needs seem so great but so often overlooked. Each time I visit these rural communities, I meet more people, I am told more stories and learn more than most would care to know or be able to comprehend. Sobering stories of hardship, poverty, illness, violence, molestation, rape and even murder. Everyone has a story; they are only told if you take the time to listen and ask. After my days out in the community, I am always grateful for my long drive home, the desert sand and the saguaros in the sunset, that help me process the unthinkable. I feel very fortunate to have the opportunity to meet these farm-working families but I am always left with the same question: "What could we do to better serve them?" ■

National Health Observances

The following national health observance dates may be useful as you plan Health Education events this summer:

JUNE

Dairy Month

Stand For Children Day (1)

Fireworks Safety Month (thru July 4)

National Prevention of Eye Injuries Awareness Week (28-July 8)

National Safety Month

National Sobriety Checkpoint Week (30-July 6)

JULY

Fireworks Safety Month

Lead Poison Control Week (20-26)

AUGUST

Clean Air Month

National Food Safety Month

World Breast-feeding Week (1-7)



Migrant Clinicians Network

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calendar

2004 National Farmworker Health Conference

April 29-May 1, 2004
Miami, FL
National Association of Community Health Centers
301-347-0400
www.nachc.com

Spring 2004 Primary Care Conference

May 22-26, 2004
Grand Hyatt Seattle
Seattle, WA
Northwest Regional Primary Care Association
206-783-3004
www.nwrpca.org

27th Annual Rural Health Conference

May 26-29, 2004
Sheraton Harbour Island Hotel
San Diego, CA
National Rural Health Association
(816) 756-3140
www.nrharural.org

18th Annual California Conference on Childhood Injury Control

September 27-29, 2004
San Francisco, California
www.cipp.org

Fourth National Conference on Quality Health Care for Culturally Diverse Populations

September 28-October 1, 2004
Washington, DC
718-270-7727
www.DiversityRx.org/ccconf

17th Annual East Coast Migrant Stream Forum

October 21-23, 2004
Hilton St. Petersburg
St. Petersburg, Florida
The North Carolina Primary Health Care Association (NCPHCA)
919 469 5701 tel
800 277 6092 tel
www.ncphca.org

Fall 2004 Primary Care Conference

October 23-27, 2004
Salt Lake City, UT
Northwest Regional Primary Care Association
206-783-3004
www.nwrpca.org

The 14th Annual Midwest Farmworker Stream Forum

November 18-20, 2004
Adam's Mark,
Denver, CO
National Center for Farmworker Health, Inc.
(512)312-2700
(800) 531-5120
Lisa E. Hughes, Hughes@ncfh.org
www.ncfh.org