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An Old Foe Revisited: An Outbreak of Tuberculosis in an American Indian Community

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Abstract

Background. Despite declines in tuberculosis (TB) rates in American Indian/Alaska Native populations, a higher burden of chronic conditions such as diabetes predisposes individuals to reactivation of latent TB disease. Therefore, TB can pose a substantial public health threat. In June 2010, an outbreak of TB was identified in an American Indian community.

Purpose. In collaboration with tribal, state, and federal partners, an investigation was conducted in order to assess the extent of the outbreak by identifying active TB patients and exposed persons in need of latent TB therapy.

Methods. All TB cases and contacts were interviewed and their medical and public health records reviewed. Contacts received a tuberculin skin test, symptom screen, and radiographic evaluation, as needed, to exclude a diagnosis of active TB.

Results. The index patient was found to have known latent TB infection after a work-related exposure in the 1980s, at which time he did not receive adequate therapy. His advancing age and new onset diabetes likely contributed to his TB reactivation. The contact investigation revealed 110 contacts, of whom there were three additional TB cases and 27 latently

infected individuals. All three TB cases and 19 latently infected individuals were immediate family members of the index patient.

Conclusions. We found that reactivation of old TB infection in the setting of diabetes and advancing age was the trigger for this outbreak. The high infection rate among immediate family members was fueled by crowding, poor ventilation, and a large number of contacts susceptible to TB.

Background

Tuberculosis (TB) among the American Indian/Alaska

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Native (AI/AN) population has been declining steadily for many years.^{1,2} The TB case rate among individuals identifying their race as AI/AN declined from 12.1 per 100,000 in 1993 to 4.1 per 100,000 in 2009.¹ Despite this trend, the TB case rate among the AI/AN population in 2009 was five times higher than among non-Hispanic whites.¹ This disparity may stem from lower socioeconomic status, poor access to health care in isolated reservation settings, and missed opportunities for TB screening.^{2,4} AI/AN populations also have a higher prevalence of chronic conditions such as diabetes⁵ and chronic kidney disease,^{6,7} placing them at an increased risk of developing TB disease and suffering poor outcomes.^{8,9}

Prevalence of diabetes among AI/AN adults increased from 11.5% in 1994 to 15.3% in 2002, and AI/AN persons had a 2- to 3-fold higher prevalence of diabetes compared to all U.S. adults.⁵ The international body of evidence linking diabetes to TB continues to mount,⁸ suggesting that the disparity in diabetes prevalence in the AI/AN population also contributes to the disparity in TB incidence. Numerous studies have looked at pathways of association between these two diseases.⁸ Some have found that diabetic persons might have an increased propensity for acquiring TB infection, active TB disease, and suffering poor outcomes despite treatment.^{8,9}

TB outbreaks have been reported previously in AI/AN communities.^{10,11} This report describes an outbreak identified after a case of pulmonary TB was diagnosed in a resident of an Indian reservation in June 2010. The subsequent investigation revealed one adult and two pediatric secondary TB cases and numerous individuals with latent TB infection (LTBI).

Methods

Tribal, state, and federal public health partners investigated this outbreak in June - August 2010. The medical charts and public health records of the patients who were diagnosed with TB and their exposed contacts were reviewed. In contacts, a tuberculin skin test (TST) with >5mm induration was considered to be positive, indicative of TB infection. All contacts also received a medical history review and symptom screen, with additional clinical evaluation and radiography, as needed, to exclude a diagnosis of active disease. Case patients and contacts were then re-interviewed to confirm whether exposure to other known TB cases could be documented. Finally, the genotype pattern of the outbreak's *Mycobacterium tuberculosis* strain was reviewed using the TB Genotyping Information System.¹²

Results

The index patient was a U.S.-born AI/AN male in his 50s diagnosed with TB disease in June 2010. Diabetes was also diagnosed at that time. He had a history of LTBI after a well-documented TST conversion in 1989, while in his 30s, following known exposure to infectious TB while working in a local long-term care facility. He began but did not complete LTBI therapy (i.e., isoniazid) at that time. In May 2010, he

presented to a local emergency room with symptoms of cough and shortness of breath for three months and was found to have an abnormal chest x-ray and sputum that subsequently grew a susceptible strain of *M. tuberculosis* on culture.

The second TB outbreak case occurred in a grandson (under age 5) who resided in the index patient's household. Although upon screening the child had no symptoms, his TST was positive, his chest x-ray was abnormal, and a culture of gastric aspirate grew *M. tuberculosis* with subsequent genotype matching the index patient's TB strain. The third case was also identified during the index patient's initial contact investigation, in a granddaughter (aged 5 - 14) also residing in the same household. Laboratory evaluation of gastric aspirates found no evidence of *M. tuberculosis*, but the patient's abnormal chest x-ray and symptom of chest pain led to a clinical diagnosis of TB and initiation of TB treatment. The fourth outbreak case occurred in the index patient's son (aged 25 - 34) who lived in a different household but was a frequent visitor. Although the patient had no symptoms, his TST was positive and his sputum cultures grew *M. tuberculosis* with the same genotype as the outbreak strain.

The extensive contact investigation revealed 110 contacts (Figure 1). The contacts who spent the most time with the index patient were those in the immediate family and those who lived in a neighboring home. Among the immediate family, 19 (76%) had evidence of TB infection. Factors that probably contributed to this high infection prevalence included crowding within the index patient's home (i.e., 16 immediate family members lived in a 3-room residence), poor ventilation, and a large number of contacts susceptible to TB (e.g., children) within the households. Among the neighbors, 5 (56%) had LTBI, which was thought to have resulted from frequent visits with the index patient.

The contact investigation found minimal evidence of infection among the extended family or coworkers in the outdoor construction business. In addition, the index patient was placed in airborne infection isolation from the first day of his hospitalization; no LTBI was identified among the seven health care workers who cared for him. All individuals with LTBI began isoniazid treatment during or shortly after this investigation.

The outbreak genotype matched one additional TB case from the same community in 2005. We located and interviewed the 2005 patient to ascertain his epidemiologic association with the 2010 outbreak cases. Our interview revealed that he had worked with the index patient in the same long-term care facility during the 1980s, when both had been exposed to infectious TB.

Conclusions

Our investigation demonstrates that even one individual with untreated LTBI can lead to a TB outbreak. Fortunately, as soon as the index patient first sought medical attention for his TB symptoms, a diagnosis of TB was suspected, and he was

appropriately placed into airborne infection isolation, thus averting further spread of *M. tuberculosis*. Tribal, state, and federal collaboration resulted in a rapid response that subsequently helped ensure the identification, evaluation, and treatment of three secondary TB cases and numerous contacts with LTBI.

Two decades previously, the index patient had had documented evidence of new TB infection following work-related exposure to infectious TB patients but did not finish LTBI treatment. Treating LTBI as soon as it is first diagnosed is preferable, because most persons who develop TB disease do so within the first two years after infection.¹³ Further supporting LTBI treatment early in a person's lifetime, recent literature demonstrates an elevated risk of hepatotoxicity from LTBI therapy among patients older than 65 years.¹⁴ However, as this outbreak demonstrates, reactivation of untreated LTBI can occur at any time, as occurred for this individual as he aged and developed diabetes. The increasing prevalence of diabetes in AI/AN communities could conceivably contribute to more such TB cases in the future. Continued vigilance in identifying and treating LTBI is imperative, particularly among those who have a known history of TB exposure, diabetes, or other predisposing illnesses.

Due to decades of successful TB control efforts by tribes, the Indian Health Service, and TB control programs, TB incidence has declined in AI/AN communities. However, our investigation serves as a reminder that reactivation of LTBI can pose a major public health threat in communities with declining TB incidence. Because the historically high burden of TB in the AI/AN population has left many older AI/AN persons with LTBI, reactivation clusters like this one can be expected to continue.

Acknowledgments

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Scholarships Available

The University of Arizona announces the Graduate Certificate program in Maternal and Child Health (MCH) Epidemiology. Applications for the program are now available. With funds from the Health Resources and Services Administration (HRSA), the Mel and Enid Zuckerman College of Public Health is offering 10 - 15 scholarships to MCH professionals working with American Indian and underserved communities nationally. These scholarships, valued at \$11,685 each, will be awarded for the year 2013/14. The University of Arizona's Graduate Certificate in Maternal and Child Health (MCH) Epidemiology is offered entirely online with no

requirements for travel. The deadline to apply for applications to the program is March 1, 2013. All qualified applicants will automatically be considered for scholarship.

For more details about this great opportunity, please visit the program website at <http://www.mch-epitraining.arizona.edu/>. The application form can be found at http://www.mch-epitraining.arizona.edu/documents/MCH-EPIApplicationForm2013_001.pdf.

If you need additional information, please feel free to contact Dr. John Ehiri at jehiri@email.arizona.edu, or Maribel Tobar at matobar@email.arizona.edu.

Our Apologies

We apologize for the delay in the production of this issue. Constraints on funding at the end of the fiscal year made it impossible to complete the preparation of the issue until now.

We will catch up with our usual monthly publishing schedule as soon as possible. We are currently accepting submissions for the January issue.

This is a page for sharing “what works” as seen in the published literature, as well as what is being done at sites that care for American Indian/Alaskan Native children. If you have any suggestions, comments, or questions, please contact Steve Holve, MD, Chief Clinical Consultant in Pediatrics at sholve@tcimc.ihs.gov.

IHS Child Health Notes

Quote of the month

“I think we consider too much the good luck of the early bird and not enough the bad luck of the early worm.”

Franklin Delano Roosevelt

Article of Interest

Recommendations for Prevention and Control of Influenza in Children, 2012 - 2013 Policy Statement of the AAP Committee on Infectious Diseases

<http://www.aap.org/en-us/my-aap/advocacy/Documents/Flu-Policy-13-2012.pdf>

This statement updates recommendations for routine use of trivalent seasonal influenza vaccine and antiviral medications for the prevention and treatment of influenza in children. The key points for the upcoming 2012 - 2013 season are as follows:

1. This year’s trivalent influenza vaccination contains A/California/7/2009 (H1N1)-like antigen (derived from influenza A [H1N1] pdm09 [pH1N1] virus); A/Victoria/361/2011 (H3N2)-like antigen; and B/Wisconsin/1/2010-like antigen; the influenza A (H3N2) and B antigens differ from those contained in the 2010 - 2011 and 2011 - 2012 seasonal vaccines;
2. The American Academy of Pediatrics (AAP) recommends annual trivalent seasonal influenza immunization for all people, including all children and adolescents, 6 months of age and older during the 2012 - 2013 influenza season. In addition, special

efforts should be made to vaccinate people in the following groups:

- All children, including infants born preterm, who are 6 months of age and older with conditions that increase the risk of complications from influenza (e.g., children with chronic medical conditions, such as asthma, diabetes mellitus, immunosuppression, or neurological disorders)
- All household contacts and out-of-home care providers of children with high-risk conditions; and children younger than 5 years, especially infants younger than 6 months
- All health care personnel
- All women who are pregnant, are considering pregnancy, have just delivered, or are breastfeeding during the influenza season.
- An updated dosing algorithm for administration of influenza vaccine to children 6 months through 8 years of age has been created and can be viewed on page 42 of the document. If the child is known to have had two or more flu vaccinations since 2010 then he/she only needs one influenza vaccination in the 2012 - 2013 season. If the child has had less than two flu vaccinations or flu vaccination status is unknown then he/she should receive two flu immunizations in the 2012 - 2013 flu season.

Editorial Comment

This is an excellent summary article. The algorithm for children ages 6 months - 8 years is simple and helpful and should be posted in all clinics that do immunizations.



New Eagle Books Toolkit is Now Available

Dozens of free downloadable Eagle Books posters, games, crafts, flyers, event planning tools, family activities, animations, stationery, and other resources can be found in the Eagle Books Toolkit at the CDC's [Native Diabetes Wellness Program](http://www.cdc.gov/native) site. The toolkit is a free online resource for Eagle Books activity sheets, displays, props, games, how-to instructions, and even more incentives to help educate your community about type 2 diabetes in a fun and entertaining way. Don't forget, the four original Eagle Books for young children and an Eagle Book adventure novel for middle school youth are completely free for families and for programs serving American Indians and Alaska Natives. Order books at <http://www.cdc.gov/pubs/diabetes.aspx>.



Eagle Books

Inspired by the wisdom of traditional ways of health in tribal communities, the four original Eagle Books stories feature a colorful cast of animal characters and young children who explore the benefits of being physically active, eating healthy foods, and seeking the wisdom of elders regarding healthy living.

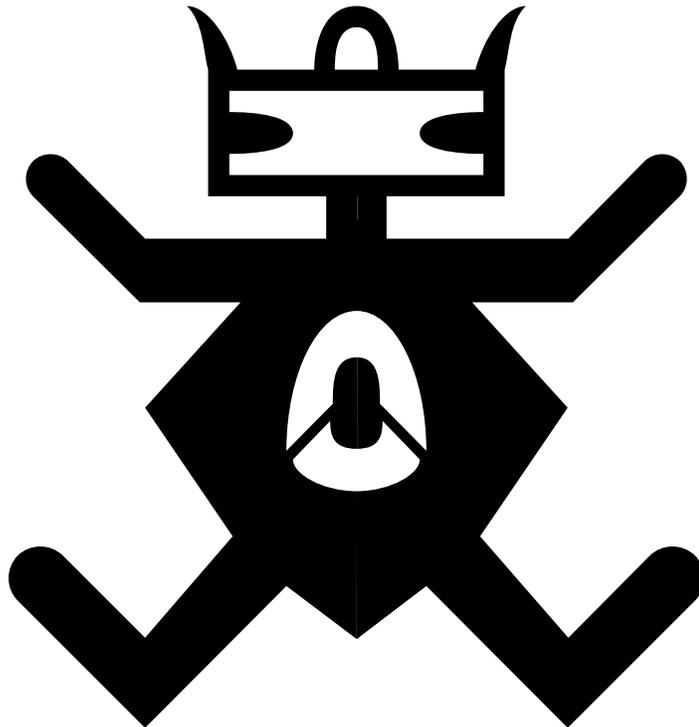
In *Coyote and the Turtle's Dream* (2011), and the forthcoming *Hummingbird Squash*, the children are growing up and finding adventures with their middle school friends. Both sets of books are produced by CDC's Native Diabetes Wellness Program of the Division of Diabetes Translation in cooperation with the Tribal Leader Diabetes

Committee and the IHS to broaden type 2 diabetes awareness and prevention.

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notifications will be sent. Do not type anything in the subject or message boxes; simply click on “send.” You will receive an e-mail from LISTSERV.IHS.GOV; open this message and follow the instruction to click on the link indicated. You will receive a second e-mail from LISTSERV.IHS.GOV confirming you are subscribed to *The Provider* listserv.



Expanding Roles of Pharmacists in IHS

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Introduction

Providing health care access and quality health services is a responsibility of every person working within the Indian Health Service (IHS). Over the past year, the IHS HIV/STD/HCV Pharmacy workgroup has been pursuing new and innovative programs to increase access to quality care for American Indian and Alaska Native patients through clinical pharmacy services and integration. Taking guidance from the US Public Health Service Pharmacy Prevention Strategy, the IHS HIV/STD/Pharmacy workgroup strives to 1) increase access to quality care and preventative services; 2) decrease population morbidity and mortality; 3) shift from treatment-focused to prevention-focused care; 4) decrease or contain overall health care costs; and 5) coordinate national prevention efforts.¹

Pharmacists have focused efforts on an interrelated set of infectious diseases, most of which have national screening recommendations and lengthy treatment regimens. These include human Immunodeficiency virus (HIV), hepatitis C virus (HCV), sexually transmitted diseases (STDs), and tuberculosis (TB). These efforts include: HIV program administration; HIV/STD/HCV screening at pharmacy visits; HIV/HCV medical and drug adherence improvements; HIV/HCV quality of care measures; HIV/HCV telemedicine coordination and medical treatment; HIV/HCV disease management; HIV/HCV testing in the emergency department, and potential investigation into multidrug resistance. The Institute of Medicine states that a comprehensive approach ranging from commitment of leadership and systems change to provider and patient education is needed to improve patient safety and ensure healthy healing without complications.² Following are examples of a sample of pharmacist-led programs within the IHS that display that commitment to leadership, systems change, and high quality, individualized patient care.

Claremore Indian Hospital - Hepatitis C Clinic

The pharmacy-based HCV Clinic in Claremore, Oklahoma was developed in early 2010 as a response to patients receiving treatment and monitoring from physicians at three-month intervals. This infrequent follow up system resulted in medication non-adherence, adverse drug reactions, and ultimately, unachieved sustained viral reduction (SVR; treatment failure). The pharmacy-based clinic utilizes HCV-trained physicians and pharmacists to educate, treat, and monitor patients eligible for therapy. The clinic protocol allows for up to fifteen actively enrolled patients at any given time and has treated over fifty patients in the last two years. The Claremore HCV Clinic runs under the Pharmacotherapy Clinic umbrella, along with the tobacco cessation, lipid, and diabetes clinics. The clinic is under a collaborative practice agreement (CPA) between physicians and pharmacists to manage specific chronic conditions of patients.

The Pharmacotherapy Clinic runs half-days Monday through Friday, which allows for appointment flexibility. The roles of the HCV Clinic pharmacist include enrolling patients in medication assistance programs, assisting in treatment decisions for HCV management, laboratory ordering and monitoring, receiving and dispensing medications, and educating the patient on medication adherence, adverse drug reaction (ADR) management, and dietary and lifestyle modifications. Pharmacists may make dosing changes based on laboratory and physical findings at each visit.

During fiscal year 2011, almost \$1 million of medication costs were averted by capitalizing on the use of patient assistance programs, including \$671,900 for genotype 1 and \$286,700 for genotype 2/3 patients. Pharmacists also enrolled patients with private insurance, Medicare, or Medicaid in copay assistance programs. Outcomes reported yearly include medication adherence, SVR rates, and ADR information.

Future plans at Claremore Indian Hospital include expanding services to include patients co-infected with HIV, incorporating telehealth management services, and increasing patient screening for hepatitis C and HIV.

Northern Navajo Medical Center Infectious Disease Clinic

The Infectious Diseases Clinic in Shiprock, New Mexico is a multidisciplinary clinic that includes physicians, pharmacists, nurses, and other personnel. Several years of strong pharmacist-physician collaboration in the NNMC HIV Clinic led to the consolidation of separate HIV-, hepatitis C-, and tuberculosis-focused clinics into the unified Infectious

Diseases Clinic in 2011, with the express purpose of increasing pharmacist involvement in management of all three disease states. While clinic pharmacists remain most active in the area of HIV, their role is expanding into various aspects of hepatitis C virus, tuberculosis, and sexually transmitted infection management and surveillance. The NNMC Infectious Diseases Clinic is currently coordinated by a clinical pharmacist and is undergoing rapid and exciting change.

Clinic pharmacists are integrally involved in medical management of patients with HIV at NNMC. Currently, over twenty-five active patients are enrolled in the HIV clinic and more than one-half of these patients are receiving antiretroviral treatment. Patients with HIV are transferred to the HIV clinic physician for primary care, as well as management of their HIV infection. Accordingly, clinic pharmacists participate in optimization of HIV therapy as well as management of other concurrent disease states (e.g., diabetes, hypertension, hyperlipidemia, asthma, etc.). Pharmacists assist in treatment decisions regarding antiretroviral therapy, opportunistic infection prevention and management, ordering and monitoring of laboratory and health maintenance indicators, and assessing and increasing medication adherence. Clinic pharmacists participate in all patient visits with the clinic physician and consistently assist with recommendations regarding drug-drug interactions, appropriate dosage adjustments, identification and management of adverse drug reactions, and adherence to therapy. Clinic pharmacists also dispense patients' medications and provide detailed medication reconciliation and counseling.

Pharmacists are currently being incorporated into routine management of patients with active and latent tuberculosis and hepatitis C virus. Proposed roles include detailed medication and adherence counseling, active participation in all clinic visits (scheduled to begin in fall 2012), laboratory surveillance, and increasing patient access to hepatitis C treatment regimens, through both third party billing and medication assistance program enrollment. Clinic pharmacists are also becoming increasingly involved in collaborative partnerships with local public health personnel and medical staff members to improve access to testing and treatment for sexually transmitted infections, namely syphilis, chlamydia and gonorrhea. As pharmacists' roles become further defined in each disease state, the team also plans to establish a follow-up and adherence clinic, where patients will have increased access to specialized pharmacists to improve their understanding of and benefits from medication therapy.

Other services provided by Infectious Disease Clinic pharmacists include inventory oversight for antiretroviral agents, assisting the Pharmacy and Therapeutics Committee with formulary decisions regarding antiretroviral and opportunistic infection treatment, and protocol development for the hospital. Pharmacists spearheaded the implementation of an emergency protocol for HIV post-exposure prophylaxis and continue to work in close cooperation with medical

departments and the employee health program to improve standardization of HIV-related protocols.

The Infectious Diseases Clinic pharmacy team is looking forward to improving access to care and to increasing collaborative relationships to improve medical care and support structures for patients with HIV/AIDS, hepatitis C virus, tuberculosis, and sexually transmitted infections. Projects for the future include collaboration with tribal and state officials to increase awareness about HIV and other STIs through public service announcements, increasing access to rapid HIV tests, particularly at decentralized clinics, further standardization of STI screenings of patients presenting for care, and concerted efforts toward medical and fiscal surveillance and protocol development.

Gallup Indian Medical Center

Gallup Indian Medical Center (GIMC) pharmacists began HIV clinical services in 2000 as a result of the growing number of HIV-positive patients and increasingly complicated medication regimens. At the time there were 30 patients diagnosed with HIV at GIMC; currently, there are 120 HIV-positive patients who receive care at GIMC at least twice yearly. In response to the growing HIV-positive patient population, the GIMC HIV Care team has expanded accordingly. Beginning with one infectious disease specialty physician and two pharmacists, the Care Team has expanded to provide patients a multi-disciplinary health care delivery approach consisting of two infectious disease physicians, four clinical pharmacists, one HIV specialist nurse, one HIV specialist health technician, one dietitian, one mental health care provider, and one Native American traditional healer

In early 2011, the GIMC pharmacy HIV clinic received a grant to hire a part-time pharmacist, allowing the clinic pharmacists valuable time to expand practice. Subsequently, the four clinic pharmacists created and implemented a new clinic collaborative practice agreement (CPA). The CPA's aim is to improve health care delivery by adding pharmacists to the list of providers able to order and interpret laboratory data, and, using the data along with other patient factors, order medications to treat illness and disease. For example, as HIV-positive patients live longer, their cardiovascular disease risk increases, particularly due to HIV disease and the medications used to treat it, ART. To help combat this, GIMC HIV pharmacists have lipid medication prescriptive privileges and laboratory ordering authority, which can reduce cardiovascular disease risk.³

ART adherence is paramount for successful patient outcomes and is a primary focus for the clinic pharmacists. It has been documented that 95% adherence is required for HIV virus minimization and positive outcome generation.⁴ Clinic pharmacists see most patients at least twice annually, emphasizing medication compliance at each visit. Pharmacists identify impediments to adherence, including psychosocial issues, ambivalence, HIV disease state/ART ignorance, and

forgetfulness. Barriers are addressed during the visit, and solutions are provided to patients, for example, referrals to behavioral health services, providing disease-state and medication education, supplying and filling pill boxes, and setting cellular phone alarms as medication reminders. Pharmacists also participate in home visits to consolidate therapy and maximize adherence, as well as send monthly reminder letters to all patients receiving ART that their medication is ready for pick-up at GIMC. During calendar year 2011, clinic outcomes were documented and appraised. Excluding ART initiation during 2011 or two months prior, 91% of GIMC HIV patients met the goal of an HIV viral load less than 200 copies per milliliter.

The GIMC pharmacy HIV clinic plans to expand further soon, offering follow-up care for HIV/hepatitis C coinfecting patients. Pharmacists are also working on HIV medication and hepatitis C information flip charts that will be carried into the field by health technicians and nurses, educating and empowering patients. With the advent of universal HIV testing recommendations and improving rapid testing technology, GIMC pharmacists also plan to offer HIV screening services. “Back-door” HIV screening as patients pick up medications in the pharmacy, as well as staffing and testing in the emergency department, all have the potential to greatly improve access to HIV status, HIV education, and subsequent HIV treatment.

Phoenix Indian Medical Center

Phoenix Indian Medical Center (PIMC) has been treating AI/AN living with HIV for over two decades. Patients were first treated in primary care in the early 1990s. The HIV Center of Excellence (HIVCOE) was formed in 1996 with one physician and two case managers. In 2004, the pharmacy practice resident started a longitudinal rotation with the HIVCOE after a drug interaction was missed by the team and outpatient pharmacy. The pharmacy practice resident had specific HIV training during clinical rotations in an HIV collaborative practice. Pharmaceutical care services included adherence assessment and counseling, drug interaction screening, side effect management, medication reconciliation, and primary care disease medication management recommendations. After demonstrating the advantages of having a pharmacist on the team, a new half-time position was created in 2005 with the goal of addressing the continued increase of facility expenditures for ART while providing HIV pharmaceutical care.

During a five year span (FY06 to FY10), almost 3.5 million dollars of cost for ART was avoided by maximizing use of alternate resources like Medicaid, Medicare Part D, private insurance, and the AIDS Drug Assistance Program. Concurrently, the program saw extensive growth, with 83 patients treated for 802 patient/months in FY05 to 149 patients treated for 1446 patient/months in FY10, an increase of 80%. Patient outcomes were monitored during this time period by evaluating the last viral load for the fiscal year. Patients were

considered to be at goal if the viral load was less than 200 copies/ml on treatment or a 1 - 2 log drop if recently starting ART. When evaluating all patients who received at least one month of ART, a minimum of 89% of patients were at goal at the end of each fiscal year. This outcome demonstrates a high level of adherence in this specific population.

One lead pharmacist is assigned to the HIVCOE clinic, and other pharmacists are trained to cover during leave. All pharmacy residents and the majority of outpatient students rotate through the HIV clinic. The HIV clinical pharmacist role has expanded over the years. In 2007 the position moved full-time through involvement in the Minority AIDS Initiative grant (started in 2005) to expand access to care in Indian Country through HIV telehealth. Further MAI grant initiatives at PIMC have included improving patient care through the chronic care model and expanding HIV pharmacy and behavioral health services. The HIV clinical pharmacist is the provider for the pharmacy-based adherence clinic, who has prescribing privileges for treatment of naïve patients and for lab monitoring. Treatment experienced patients are also referred to adherence clinic, and antiretroviral changes are made with consultation. Another pharmacist duty includes post-exposure prophylaxis (recommendations for treatment and follow-up monitoring). The clinical pharmacist is also the HIVCOE team member responsible for monitoring new HIV diagnoses. In 2009, the HIV clinical pharmacist became the first non-physician director of the HIV Center of Excellence (acting).

Future plans at the HIVCOE include improving the graphical user interface that was developed to assist with HIV case management, continuing to expand the HIV telehealth network, and expanding access to hepatitis C treatment in patients living with HIV.

Conclusion

In the United States, over 250 million people visit a pharmacy every week.¹ Within health care reform and advancement of the pharmacy profession in the field of public health and direct patient care services, unique opportunities present themselves to expand and explore the potential benefits of using a broad prevention approach within pharmacy. Models have already shown that pharmacy-delivered patient care can prevent disease or progression of existing conditions, improve patient outcomes, promote patient involvement, contain costs, and reduce demands on the health care system.⁵

Pharmacists are improving the health of American Indian and Alaska Native people by increasing quality of care through effective prevention, screening, treatment, and support services that improve health care access and promote health; enhancing early detection of disease and improving linkages to care; promoting communication, awareness, and education; and building capacity for pharmacists to sustain these services to positively impact health.

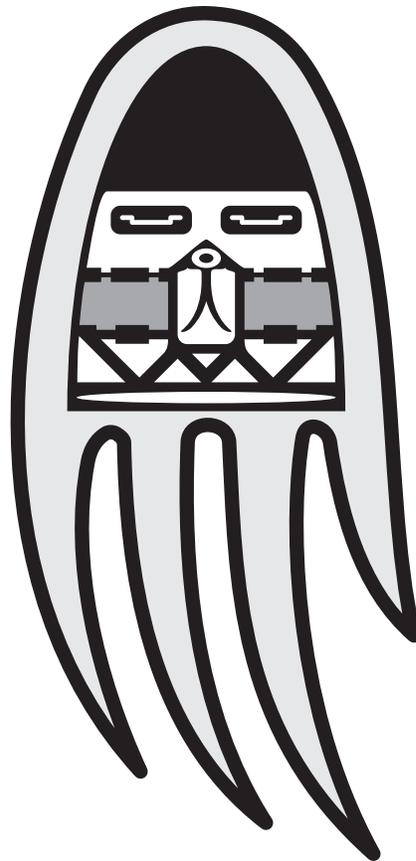
These expanded roles and services, provided by pharmacists through collaboration with physicians,

demonstrate once again the potential benefits of this health care delivery paradigm to patients and health systems.

For more information on the HIV/STD/HCV pharmacy workgroup, please e-mail Jessica Leston at jleston@npaihb.org.

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MEETINGS OF INTEREST

Advancements in Diabetes Seminars Monthly; WebEx

Join us monthly for a series of one-hour WebEx seminars for health care program professionals who work with patients who have diabetes or are at risk for diabetes. Presented by experts in the field, these seminars will discuss what's new, update your knowledge and skills, and describe practical tools you can use to improve the care for people with diabetes. No registration is necessary. The accredited sponsors are the IHS Clinical Support Center and IHS Nutrition and Dietetics Training Program.

For information on upcoming seminars and/or previous seminars, including the recordings and handouts, click on this

link and see Diabetes Seminar Resources: <http://www.diabetes.ihs.gov/index.cfm?module=trainingSeminars>

Available EHR Courses

EHR is the Indian Health Service's Electronic Health Record software that is based on the Resource and Patient Management System (RPMS) clinical information system. For more information about any of these courses described below, please visit the EHR website at http://www.ihs.gov/CIO/EHR/index.cfm?module=rpms_ehr_training. To see registration information for any of these courses, go to <http://www.ihs.gov/Cio/RPMS/index.cfm?module=Training&option=index>.

Print Version of *The Provider* to Cease Publication

The federal government is always exploring ways to reduce costs. One recent initiative is an effort to reduce printing expenses. After the distribution of the next two quarterly print issues for the third and fourth quarters of 2012, we will stop printing and mailing out paper copies.

We will continue to publish the monthly electronic edition of our journal to the CSC website. Currently, about 900 individuals are subscribers to the listserv that notifies them when each monthly issue is posted, and lists the contents of

that issue. It is unknown how many readers simply access the website on a periodic basis without relying on the listserv for reminders that the monthly issue is available.

We encourage all our readers to subscribe to the listserv (go to <http://www.ihs.gov/provider/index.cfm?module=listserv>) so that you will receive monthly reminders about when the latest issue is posted to the website. This will also give us an improved count of the number of readers.

POSITION VACANCIES

Editor's note: As a service to our readers, THE IHS PROVIDER will publish notices of clinical positions available. Indian health program employers should send brief announcements as attachments by e-mail to john.saari@ihs.gov. Please include an e-mail address in the item so that there is a contact for the announcement. If there is more than one position, please combine them into one announcement per location. Submissions will be run for four months and then will be dropped, without notification, but may be renewed as many times as necessary. Tribal organizations that have taken their tribal "shares" of the CSC budget will need to reimburse CSC for the expense of this service (\$100 for four months). The Indian Health Service assumes no responsibility for the accuracy of the information in such announcements.

Family Practice Physician /OB Sonoma County Indian Health Project (SCIHP); Santa Rosa, California

Live, work, play in Wine Country. Sonoma County Indian Health Project (SCIHP) Santa Rosa, CA California, is seeking a full-time family practice physician to join our team. SCIHP is a comprehensive community care clinic serving the Native American community of Sonoma County. Medical phone call 1/6 nights required, OB hospital call participation preferred but not required. Candidates must currently hold a California Physician/Surgeon (MD) or Osteopathic Physician/Surgeon (DO) license and be BE/BC in a primary care discipline. For the right candidate we offer competitive compensation. For more information, please contact Human Resources by fax (707) 526-1016; or by e-mail: welovedoctors.hr@gmail.com. (10/12)

Pediatrician Blackfeet Community Hospital; Browning, Montana

This hospital-based government practice is seeking a BC/BE pediatrician to work with another pediatrician and a pediatric nurse practitioner. Practice true primary care pediatrics with inpatient, outpatient, and newborn hospital care. Attractive call and rounding schedule. Competitive salary with federal government benefits. The area provides a wide variety of outdoor recreational activities, being only 12 miles from Glacier National Park. For more information, please contact Dr. Tom Herr at thomas.herr@ihs.gov or call (406) 338-6372. (9/12)

Primary Care Physician Zuni Comprehensive Community Health Center, Zuni, New Mexico

The Zuni Comprehensive Community Health Center

(Zuni-Ramah Service Unit) has openings for full-time primary care physicians starting in fall 2012. This is a family medicine model hospital and clinic providing the full range of primary care, including outpatient continuity clinics, urgent care, emergency care, inpatient (pediatrics and adults) and obstetrics, with community outreach, in a highly collaborative atmosphere. For a small community hospital, we care for a surprisingly broad range of medical issues. Our professional staff includes 17 physicians, two NPs, one CNM, a podiatrist, dentists, a psychiatrist, a psychologist, optometrists, physical therapists, and pharmacists. Our patient population consists of Zunis, Navajos, and others living in the surrounding area.

Zuni Pueblo is one of the oldest continuously inhabited American Indian villages in the US, estimated to be at least 800 - 900 years old. It is located in the northwestern region of New Mexico, along the Arizona border. It is high desert, ranging from 6000 - 7000 feet in elevation, and is surrounded by beautiful sandstone mesas and canyons with scattered sage, juniper, and pinon pine trees. Many of our medical staff have been with us for several years, reflecting the high job and lifestyle satisfaction we enjoy in this community.

For more information, contact John Bettler, MD at (505) 782-7453 (voice mail), (505) 782-4431 (to page) or by e-mail at john.bettler@ihs.gov. CVs can be faxed to (505) 782-7405, attn. John Bettler. (7/12)

Medical Director American Indian Health and Family Services of Southeastern Michigan, Inc. (AIHFS); Detroit, Michigan

AIHFS is looking for a qualified candidate for the medical director position at our health center in Detroit, Michigan. A summary of the position is as follows: general professional guidance of primary care staff; collaborates with fellow physicians and executive director on administrative operations of the medical, dental, and behavioral health services; responsibilities for management of all aspects of the program including accreditation, infection prevention and control, patient safety risk management, and emergency preparedness. This position will report to the executive director. We are seeking someone with completion of an accredited medical school, internship, and completion of the certification examination by the medical board of examiners; a permanent current full and unrestricted license to practice medicine or osteopathy in Michigan; board certified or eligible in family practice. If board eligible, must be AAFP or AOA certified within six months from the date of hire. Current medication dispensing license (DEA). Experience and training must have been progressive and responsible, demonstrating good knowledge of current principles, practices, methods, and

techniques in the field of medicine. Medical experience in an outpatient family medical clinic including pediatrics, obstetrical/gynecological, medical care, and non-emergency care. Possess current and valid Michigan driver's license with no DUI/DWI or reckless driving convictions in the last five years, having no more than two at-fault accidents in the last three years, and maintain a valid driver license during employment. Must pass a criminal background check with a Class I Fingerprint Clearance Card within the initial ninety days of employment. Must have updated immunization record. Must have a tuberculosis test upon employment and employee health profile updated on an annual basis. Must obtain/maintain CPR certification and a valid card during employment. Please send a cover letter with resume and references to AIHFS, PO Box 810, Dearborn, Michigan 48121, Attn: Jackie Allison, Administrative Assistant. You can also fax to (313) 846-0150. (7/11)

**Certified Diabetes Educator
Salt River Pima-Maricopa Indian Community;
Scottsdale, Arizona**

Under general supervision from the Health and Human Services Department (HHS) Health Service Division, Diabetes Services Program Manager, provides diabetes preventive care, screening, clinical care, case management, and education to all children, adults, elders, and families within the Salt River Pima-Maricopa Indian Community. This job class is treated as FLSA Exempt.

To apply for this position or to view the full job description, please visit our website at <http://www.srpmicnsn.gov/employment/> then select Employment Opportunities. For additional information, contact Keolani Tynan, HR Recruitment Specialist, Salt River Pima-Maricopa Indian Community at (480) 362-7935. (7/12)

**Family Practice Physician
Jicarilla Service Unit; Dulce, New Mexico**

The Jicarilla Service Unit (JSU) is a new, beautiful, 65,000 square foot facility nestled in the mesas of northern New Mexico with views of the edge of the Colorado Rockies. We provide care to the Jicarilla ("basket-maker") Apache community with a population of 4,000. Our clinic has an opening for a board certified/eligible family practice physician for purely outpatient care with a 40 hour work week. We also have vacancies for a pharmacist and a nurse. Our site qualifies for NHSC, IHS and state loan repayment programs. JSU has a fully functional electronic health record system. Our pharmacy has a robust formulary including TNF-alpha inhibitors and exenatide. The clinic also has an urgent care clinic for acute walk-in cases. We have adopted the IPC model with care teams. Our staff currently consists of four family practice physicians, an internist, an optometrist, and three dentists. We also have a team of dedicated public health nurses who specialize in home visits for elders and prenatal follow-up. The

Jicarilla Apache Nation is self-sufficient with profits from oil and natural gas. Much has been invested in the infrastructure of the reservation, including a large fitness facility, a modern supermarket, a Best Western Hotel and Casino, and more.

We are also located 45 minutes from the resort town of Pagosa Springs, which has year-round natural hot springs and winter skiing at renowned Wolf Creek Pass. We welcome you to visit our facility in person. To take a video tour of the Nzh'ó Na'ch'idle'ee Health Center online, go to <http://www.usphs.gov/Multimedia/VideoTours/Dulce/default.aspx>. Please call Dr. Cecilia Chao at (575) 759-3291 or (575) 759-7230; or e-mail cecilia.chao@ihs.gov if you have any questions. (6/12)

**Family Practice Physician (1)
Physician Assistant or Family Nurse Practitioner (2)
United Indian Health Services, Inc. (UIHS),
Howonquet Clinic; Smith River, California
and
Family Practice Physician (1)
UIHS, Potawot Health Village; Arcata, California**

UIHS is a premier health care organization located in beautiful northern California along the Pacific coast near the majestic redwoods. The organization is a unique nonprofit made up of a consortium of nine tribes, with a mission "To work together with our clients and community to achieve wellness through health services that reflect the traditional values of our American Indian Community." UIHS provides wraparound services that include medical, dental, behavioral health, and community services. Our focus is to empower our clients to become active participants in their care. If you value outdoor adventures such as backpacking, kayaking, biking, fishing, and surfing, and you envision yourself providing services to an underserved but deserving community in a caring and holistic manner, come join our team. Please visit our website at www.uihs.org or contact Trudy Adams for more information at (707) 825-4036 or email trudy.adams@carih.net. (5/12)

**Central Scheduler
Medical Clinic Manager
Human Resources Director
Psychiatrist
Physician (Internal Medicine or Family Practice)
Consolidated Tribal Health Project, Inc.;
Calpella, California**

Consolidated Tribal Health Project, Inc. is a 501(c)(3) non-profit, ambulatory health clinic that has served rural Mendocino County since 1984. CTHP is governed by a board comprised of delegates from a consortium of nine area tribes, eight of which are federally recognized, and one that is not. Eight of the tribes are Pomo and one is Cahto. The campus is situated on a five-acre parcel owned by the corporation; it is not on tribal land.

CTHP has a Title V Compact, which gives the clinic self

governance over our Indian Health Service funding allocation. An application for any of these positions is located at www.cthp.org. Send resume and application to Karla Tuttle, HR Generalist, PO Box 387, Calpella, California 95418; fax (707) 485-7837; telephone (707) 485-5115 (ext. 5613). (5/12)

Hospitalist

Gallup Indian Medical Center; Gallup, New Mexico

Gallup Indian Medical Center (GIMC) is currently seeking energetic and collegial internists for our new hospitalist program. The hospitalists care for all adult inpatients previously taken care of by family medicine and internal medicine physicians, and provide consultation services. We have seven FTEs for hospitalists, and while we are still growing, we enjoy further inpatient staffing support from internal medicine and family medicine.

GIMC is a 99-bed hospital in Gallup, New Mexico, on the border of the Navajo Reservation. Clinical specialties at GIMC include internal medicine, family medicine, critical care,

cardiology, neurology, orthopedics, ENT, radiology, OB/GYN, general surgery, ophthalmology, pathology, pediatrics, emergency medicine, and anesthesiology. The hospitalists' daily census is approximately 25 - 30. There is a six bed ICU. Our patient population includes Navajos, Zunis, and others living nearby, as well referrals from smaller clinics and hospitals.

Gallup has a diverse community and is very livable, offering a thriving art scene, excellent outdoor activities (biking, hiking, rock climbing, cross-country skiing), safe neighborhoods, diverse restaurants, national chains and local shops, and multiple public and parochial school options. The medical community is highly collegial, is committed to continuing education, has an on-going collaboration with Brigham and Women's Hospital, and has a high retention rate.

For more information, contact Eileen Barrett, MD, at (505) 722-1577 or e-mail eileen.barrett@ihs.gov. Or please consider faxing your CV to (505) 726-8557. (4/12)



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THE IHS PRIMARY CARE PROVIDER

A journal for health professionals working with American Indians and Alaska Natives



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Publication of articles: Manuscripts, comments, and letters to the editor are welcome. Items submitted for publication should be no longer than 3000 words in length, typed, double-spaced, and conform to manuscript standards. PC-compatible word processor files are preferred. Manuscripts may be received via e-mail.

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