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Intercepting the Safety Pitfalls of the Electronic Health Record

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And they looked upon the software, and saw that it was good. But they just had to add this one other feature . . ..

G. F. McCormick
When Reach Exceeds Grasp

Disclaimer: The authors are not opponents of the electronic health record (EHR), nor modern-day Luddites. It is our intention to stimulate a spirited and honest discussion of the potential pitfalls of the EHR in terms of patient safety as well as enhance the situational awareness of all users of EHR technology within the agency. The views expressed in the article are solely those of the authors and do not express the views of any organization with which we are affiliated. Although this article focuses on EHR and safety, we do not want to sidetrack discussion of the EHR's potential for improving patient safety, medical care, and patients' lives.

One of the embodiments of a mature safety culture involves keeping discussion about risk alive even when everything seems okay. High reliability organizations are preoccupied with failure and demonstrate a reluctance to simplify interpretations.[1] Considering our responsibility to patient safety, we are obligated to make discussion about the electronic health record (EHR) and safety transparent. If Weick is correct that organizations are defined by what they ignore and by what surprises them, then an open discussion about the safety pitfalls of EHR makes sense. And as Dorner[2] has noted, if we do not concern ourselves with problems we do not have, we soon will have them. Heretofore, the discussion about the EHR has largely been dominated by the proponents of EHR, who note EHR's potential for improvements in patient safety, while little attention is given to the potential EHR problems that may compromise patient safety.

It is axiomatic that new technology inevitably introduces new paths to failure, and new technology does not remove the potential for human error, but simply changes it.[3] While there is much discussion about the increase in patient safety that EHR promises, responsible discussion should also include how EHR may affect health care system safety, ranging from minor annoyances to worst-case scenarios. Our goal should be the enhancement of those safety-producing features of EHR while preventing and intercepting problems before patient safety is compromised.

The appeal of EHR, as well as computerized physician order entry (CPOE) and bar-code medication administration (BCMA), is undeniable to the point of seduction. When one first becomes aware of the potential benefits, the recognition of the possibility of making real progress in patient safety is virtually a universal experience. The incentive is enticing for very good reasons in that errors occur in up to 5% of prescriptions.[4,5] Additionally, there are errors in duplication of tests and lost revenues that appear amenable to computerization. Recent problems with the Joint Commission's requirement for medication reconciliation are underscored by an assessment performed at IHS programs in

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Arizona that demonstrated that more than half of patients receive their immunizations from more than one location. This makes the electronic sharing of information essential to assure appropriate services are provided and not duplicated, including billing operations. However, integration of different EHRs and data management systems increases the risk of other types of error including mismatched information, differences in data standards, and mis-population of data.

If it were only so simple that adopting EHR, CPOE and BCMA would solve the majority of our clinical errors! Arguably, health care represents the most complex setting that information technology (IT) has tried to support, and Nemeth[6] has argued that computing systems themselves have not been obstacles to the use of IT in health care. The *main* obstacle, instead, has been attempting to understand the complex operations in health care that we are asking IT to improve. Some of the early report cards on IT's contribution to patient safety aren't encouraging, with some leading researchers wondering if a positive, sustained effect exists at all, and arguing the overall return on IT investment may be only marginally positive.[7] Others have noted that IT is not a panacea for health care; without appropriate processes and systems in place, IT can improve some things but others will be made worse.

Leveson[8] offers a debunking of computer myths that is difficult to ignore. A common myth is that computers are cheap. There is a partial truth in this assertion: *hardware* isn't expensive. However, what is ignored is the expense of writing and verifying highly reliable software, and maintaining that software. For instance, the 400,000 word Space Shuttle software (not huge as far as software applications go) costs NASA $100 million/year to *maintain*. Another myth is that software is easy to change; again superficially true, but making changes to software without introducing errors is difficult, and as more changes are made, software becomes increasingly "brittle." The difficulty of making changes without introducing errors increases over the lifetime of the software; e.g., RPMS/EHR users will remember recent RPMS patches that caused widespread printer crashes. Nemeth et al[9] elaborate on this point of software costing many times more than the initial price and the difficulty of identifying unanticipated expenses of installation, use, maintenance, upgrades, and changes over its lifespan. As software becomes more complex as a result of modifications and additional capabilities, and as it becomes more brittle, tracing errors and de-bugging becomes more time-consuming and expensive.

Learning costs should be considered for initial training as well as ongoing training. It is a common mistake to think that once a system is in place, it no longer requires intensive staff training. Training is costly, even when a "train the trainer" approach is used. Time for staff and trainers to separate themselves from other essential duties is costly and interferes with the normal workflow of health care programs. Without appropriate training, safety is degraded and costs may increase. Correcting misdocumented data is a difficult and time consuming process. For instance, within IHS there have been cases when misunderstanding of tobacco health factors has led to inappropriate documentation in the patient's EHR, leading to faulty Clinical Reporting System reports and difficulty in data management.

A cautionary note sounded in the literature regarding IT and health care originates in the cognition and human factors literature. Many practicing clinicians, especially nurses, will be familiar with the myriad errors and sentinel events surrounding programmable IV pumps and patient-controlled analgesia (PCA) pumps. Both technologies underscore the potential for designer and programming errors. Woods[10] notes "what we take for granted as the least common denominator in user-centered design and testing of computer systems in other high-risk industries seems to be far too rare in medical devices and computer systems. The devices are too complex and require too much training to use, given typical workload pressures." Rasmussen[11] sounded this alarm nearly two decades ago by noting how the behavior of operators is conditioned by decisions made by designers. Ultimately, safety depends partly on the original design and partly on effective control over operations.[12] Adamski[13] notes that today's complex technologies place greater demands on designers to address information overload, even as matters outside the designer's control such as poor physical equipment and hard-to-read displays impede the operator's problem-solving or decision-making process. Cook's[14] pithy observation of problems with clinical healthcare information technology (CHIT) and CPOE identifies that many designers and IT professionals miss the problems with design features or clinical work they are supposed to support. Instead they focus on human error, and "this insistence has produced a whole lot of CHIT that will be the steady stream of interesting failures over the next decade."

Woods[15] points out a host of unfamiliar concepts are required to understand the patterns in *human-computer cooperation*, including representation effect, object displays, inattentional blindness, mental models, data overload, and mode error. Laboratory simulation of an updated version of a BCMA program[16] underscored some of these problems in which all of the nurses in the study administered a medication to which a (simulated) patient was allergic. When asked, the nurses were aware that allergy information was displayed, but had not noticed the patient's allergy information. This was surprising because the software in the study had just been modified to prominently display allergies in a red font on top center of the primary display. Despite the prominent display, nurses were highly vulnerable to missing the allergy information. Dekker[17] has outlined these genotypical problems in human-computer cooperation, and more specific examples applicable to EHR are provided. The reader is invited to identify examples from their own experience.

- *Mode error*. The user thought the computer was in

one mode, and did the right thing had it been in that mode, yet the computer was actually in another mode. An example of this error can be observed in the multiple popup windows that enable documentation of data while maintaining a small area of display. The user may add, edit, or delete information. However, closing the popup window by clicking the "x" at the top of the screen versus clicking on the "save" button can result in lost information. Another example of this error involves use of the broadcasting function. This function enables one user to send a message to another user who is logged into the system. It is often used to convey patient information or ask questions. Once a message is sent, the user expects the recipient to see it. However, if the other user clicks when it arrives, the message can be hidden behind the main panel, and it could be closed inadvertently without being read, or it could be sent to the user who appears to be online but is not, resulting in failure of communication. A third and potentially dangerous example may occur when the patient's medication is placed on pharmacy hold for billing purposes and the prescriber chooses to view the patient's active meds only, potentially omitting the medication that was placed on hold.

- *Getting lost in display architectures (aka "lost in menuspace")*. It may be difficult to find the right page or data set, and the user may be required to scroll through numerous pages. Progress Notes, for example, can be cumbersome to go through to find pertinent patient information quickly. The ability to create templated information may lead to the generation of large notes that attempt to deal with legal, billing, and medical information pertinent to the patient encounter, but are difficult to navigate. It is easy to see why the clinician is confronted with information overload. In a related phenomenon, patient's exam codes or health factors are assessed frequently (sometimes at every visit), and if the displays are not configured correctly, information can become buried or difficult to find.
- *Not coordinating computer entries*. Where people work together on one (automated) process, they have to invest in common ground by telling one another what they tell the computer, and double-checking each other's work. Under the pressure of circumstances or apparently meaningless repetition, such coordination may not happen consistently. The most common example is when the prescriber creates an order outside of the normal workflow process. A nursing order placed after the nurse has begun to see the next patient or ordering a medication after the patient has already gone to the pharmacy can result in patients not receiving the information or services that are needed. Of course, this type of error occurred before EHR. Also, it is tempting for busy clinicians to complete documentation after the patient leaves or later on in the day. Relying on memory can lead to omission of patient information; or the addition of extra documentation in the patient's note may not have been conveyed to the patient, potentially creating a gap in care. Of course, coordination errors certainly predate EHR.
- *Workload*. Computers are supposed to off-load people in their work. But often the demand to interact with computers concentrates itself on exactly those times when there is already a lot to do; that is, when other tasks or people are also competing for the operator's attention. Notifications alert clinicians to a variety of tasks that are required for daily operations, ranging from review of clinical laboratory results to required billing documentation. Unlike clinical reminders, these administrative activities pull clinicians away from providing direct patient care services, sometimes necessitating scheduled time away from clinical care. Additionally, documentation in the medical record at the point of care can detract from patient-provider communications, leading some clinicians to document after the patient encounter. The EHR can often necessitate considerable time to document all the appropriate data elements, document orders, and write the note prior to seeing the next patient.
- *Data overload*. People may be forced to sort through large amounts of data produced by their computers, and may be unable to locate the pieces that would have revealed the true nature of their situation. Computers may also spawn all manner of automated (visual or auditory) warnings that clutter a workspace and proliferate distractions. By collecting information in the medical record for a variety of purposes (billing, legal, clinical), something as simple as whether a patient smokes tobacco can be scattered throughout the medical record, leading to redundancy of documentation, misalignment, and confusion. Tobacco use can be documented as an ICD9 code, as CPT codes for billing, as health factors (the recommended method) for clinical evaluation, and as specialized CPT codes for a CMS quality initiative. Use of different definitions can also increase data overload and confusion. Quality metrics, clinical reminders, and other decision support tools help guide clinicians in providing recommended care to patients; however, these systems are typically used for a specific purpose (quality reporting, performance improvement, or patient care), resulting in differences in the information generated. Potentially conflicting reports further increase the demands on clinicians

forced to wade through this information and other reference material.

- *Not noticing changes*. Despite the enormous visualization opportunities the computer offers, many displays still rely on raw digital values. It is very difficult to observe changes, trends, events, or activities in the underlying process through one digital value by clicking up or down. One has to look at the data often or continuously, and interpolate and infer what is going on, which requires a lot of cognitive work by the user.
- *Increasing operational demands*. The EHR allows the system to be driven closer to its margins, eroding the safety advantage that was gained (e.g., an IHS clinic in Arizona had to close its schedule to walk-ins because providers are required to spend more time entering into EHR).
- Another concern is that during the use of automated systems, people have been shown to be more willing to accept even *poor* advice when it comes from a computer and have difficulty revising machine-initiated solutions.[18] Additionally, when clinicians are faced with a task that is not supported by the system, they are apt to misuse software to perform tasks that it should not perform. One example involves documenting "point of care" glucose results in the Chief Complaint section, where it may not be found. This has been corrected in the most recently released EHR patch with the ability to document point-of-care labs into the RPMS lab package. Another example that has been identified and is being corrected is the inability of the clinician to add a medication to the patient's medication list that is not dispensed by the pharmacy (outside meds). Often, these workarounds can erode the safety built into the system by not including these medications in drug-drug interaction or drug-allergy screening.

In the event of a network or software failure, recovery is difficult. Implementation of EHR means replacing parts of the previous system, and as Perry[19] has noted, retreating to the "old" way of doing things may be impossible. Cook[20] has elaborated on this in the context of CPOE. By its reliance on electronic records, recovery is problematic and experience with other complex computer systems indicates these systems may be harder to build and maintain than their proponents believe. Little attention has been paid, Cook believes, to the reliability of information and system-maintenance tasks, and critical information-maintenance functions may be left in the hands of pharmacists and technicians, paradoxically producing new opportunities for human error. As pharmacy operations become more tightly coupled with IT, accident investigations will require that pharmacists acquire more trouble-shooting and computer forensic expertise.

NASA scientist Hecht[21] was the first to articulate the following insights about failure in well-tested computer systems. In well-tested systems, rarely executed code has a higher failure rate than frequently executed code. Consequences of rare event failures in well-tested systems are more severe than those of other failures. Given that there is a failure in a well-tested system, significantly more of the failures are caused by rare events. Inability to handle multiple rare conditions is a prominent cause of failure in well-tested systems. Cook[22] takes this further by applying these principles to new technology and how it creates opportunities for new, low-frequency but high-consequence failures. He makes an observation about how difficult these kinds of failures are to predict before they occur and how we tend to pay most of our attention to the reported beneficial effects of new technology. Because these new, high-consequence accidents occur at a low rate, multiple system changes may occur before an accident, making it hard to see the contribution of technology to the failure. Furthermore, Cook notes the paradox that the consequences of using information technology to couple all the system components is the likely reduction of the *number* of accidents but an increase in the *severity* of the accidents that do occur.[23]

Several system safety scientists and researchers have focused on safety and technological advances. Marais[24] identifies an archetype involving stagnant safety practices in the face of technological advances. Technology advances result in a focus on performance and a corresponding increase in performance, which in turn motivates further advances. At the same time, the focus on performance detracts from attention on safety. As the speed of change accelerates, understanding of the safety implications lags further behind. Stagnant safety practices can be improved by applying new technologies only when their risks are well understood, investing more resources in the understanding of new technologies, and by developing tools for understanding complex systems. Cook[25] suggests that resource pressures tend to push systems to the edge of the performance envelope, and this is especially true of computer-based systems that give the appearance of being simple while hiding complexity.

It's ironic that part of the appeal of computers is their ability to deal with complexity, yet their increasing use adds complexity to systems, and leads to the development of more complex systems. Woods[26] concludes "In the final analysis, the enemy of safety is complexity . . . often, we have found that proposals to improve systems founder when they increase the complexity of practice. Adding new complexity to already complex systems rarely helps and can often make things worse. This applies to system improvements justified on safety grounds as well. Accidents caused by dysfunctional interactions among components become more likely, and because the systems are complex, it's difficult to project how changes in operations create opportunities for new forms of failure.[27]" Nemeth[28] echoes this concern about our ability to

anticipate complex events because of our lack of imagination and importantly, because of the limits of our risk assessment technology. Schulman's[29] warning is worth remembering: "all the potential failure modes in highly complex technical systems that can manifest haven't yet been realized, nor have we exhaustively deduced them, and technology remains capable of surprises."

It is far too early to offer a definitive evaluation of EHR in terms of patient safety. The literature is certainly mixed. This article's cautionary medley of EHR's potential problems affecting patient safety obligates us to ask some tough questions if we are to ensure the implementation of EHR with a minimum of disruptions both to our work and patient safety. Scriven[30] argues the most difficult challenges in evaluation aren't methodological or political but psychological, that is, the ability to survive "outside the pack." "Joining is a great human survival trait, but it is death to objectivity." Scriven argues that we can't be pulled into the glitter of "new and brilliant" because that is rarely the same as "produces significantly better results," let alone cost-effective. Evaluation attempts in general have a bias towards positive findings, so we have to find a path of objectivity regarding EHR. The human factors and cognition literature asserts the need for effective communication between users (who are, typically, very poor designers) and designers (who typically have very poor understanding of clinical work as it is done at the point of use). Certainly, some will be defensive about EHR and its benefits for patient safety, and others for its potential for compromising patient safety. But unanticipated effects (good and bad) are often the main point of an evaluation.

This article makes an appeal that we not only consider the issue of "side effects" of EHR, especially in terms of patient safety, but that organizationally we invigorate the discussion about the failure modes made possible by EHR. As we accumulate more experience with the failure modes of EHR, especially in terms of design and cognition, we can add training and expertise for all users. We also need to responsibly consider the real barriers and costs of EHR including hidden costs, downtime costs, maintenance and supply costs, time costs, and expertise requirements that affect patient safety. An especially pervasive barrier to EHR implementation is a cumbersome and bureaucratic procurement system that presents obstacles to administrators attempting to meet deadlines and commitments for hardware purchases and EHR training. There are psychological and motivational costs to organizations faced with these repeated delays and disappointments. Leadership has to identify new vulnerabilities related to the changes EHR induces and implement countermeasures before accidents occur. Risk Management, which is typically left out of discussion about EHR, should be moderating discussions on failure mode analysis and we would do well to obtain the input of human factors experts. Leadership has to monitor the gap between how they *think* work is done and how it is actually accomplished.

Leadership will have to continually re-invent their models of risk associated with EHR because the relationship of safety and EHR can't be passive. We have to learn from our own EHR failures at the service unit level as well as other's failures, and we need a forum for the exchange of lessons learned. As EHR evolves, so too will the risks, and today's defenses will erode tomorrow under production and budget pressures and resource constraints. We will have to guard against tunnel vision from within our own experience that may require a "fresh" or outside perspective to illuminate both old and new dangers. Safety does not intrinsically reside in computers and software, but appears through the interactions between people, machines, working conditions, and the demands for production.[31]

Several organization and regulatory efforts are underway to address some of these issues:

- Certification Committee on Health Information Technology, the accrediting body for EHRs that assures purchasers that the EHR does everything according to a national standard. The IHS received certification from CCHIT in 2007 and will reapply for re-certification in 2010 (certification expires every three years).
- The Centers for Medicare and Medicaid Services (CMS) plan to offer monetary incentives to physicians and hospitals that are using EHRs. This project is called "meaningful use" and requires the EHR to have the functionality and capability to be used in ways that are safe and effective.
- The Indian Health Service has created the EHR website where a wealth of information and tools can be found (including note templates and lessons learned) as well as a user-contributed listserv to identify problems and issues, and assist one another in the day-to-day use of the EHR. When problems are identified, users are encouraged to document these problems or enhancements on the RPMS Feedback page, where they can be turned into requirements and corrected with future software.
- The IHS has partnered with Human Factors International (HFI), a company that focuses on improving software usability, to improve the design and layout of the EHR and other software.

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Four Year ACCME Accreditation

We are pleased to report that the IHS Clinical Support Center has recently received notification that it has received another full accreditation decision from the Accreditation Council for Continuing Medical Education (ACCME). This is a reflection of the high quality of the continuing education sponsored by CSC, and will allow the CSC to continue to sponsor continuing medical education (CME) for physicians for another four years. We salute our coordinators, planning committee members, and speakers who have worked so hard to make this possible.

Of course, there is always room for improvement, and the ACCME has asked us to write a plan to strengthen our sponsorship practices in two fundamental areas. These relate to the needs assessment process used to plan educational activities and the evaluation process used to demonstrate that they are effective. While it is ultimately up to CSC to make this happen, we will ask for the assistance of our activity planners and coordinators to help effect the necessary changes.

Needs Assessment

According to the updated ACCME criteria, "As a partner in the national discourse to identify strategies to improve United States healthcare, ACCME accreditation requirements are evolving so that it is more effectively addressing current and emerging public health concerns." They more specifically require that

- The provider incorporates into CME activities the educational needs (knowledge, competence, or performance) that underlie the professional practice gaps of their own learners.
- The provider generates activities/educational interventions that are designed to change competence, performance, or patient outcomes as described in its mission statement.
- The provider generates activities/educational interventions around content that matches the learners' current or potential scope of professional activities.
- The provider chooses educational formats for activities/interventions that are appropriate for the setting, objectives and desired results of the activity.
- The provider develops activities/educational interventions in the context of desirable physician attributes (e.g., IOM competencies, ACGME Competencies).

We believe that it is not so much a matter that we do not follow the above five criteria, but that we do not have sufficient documentation – proof – that we do. In particular, we need to be able to show that educational activities are planned based on documented gaps in the knowledge, competence, or performance of the physicians and others in the target audience.

For example, in many of our regularly scheduled series (RSS, or "grand rounds"), often the needs are derived from "staff surveys," "committee reports," and so on. It would be better documentation to state, as an example, that "The Pharmacy and Therapeutics Committee reported that there are many different regimens being used in the treatment of . . ., and that they believe that this could be remedied by the adoption of 'best practices' for this condition." This need not be documented for every topic in a grand rounds series, or every topic in a three-day conference, but it would be helpful if we could show that we use these practices on a regular basis.

To assist those of you who coordinate continuing education activities, often with little help and as an extra duty, we will 1) develop educational materials that will help you understand what we are asking you to do, 2) make one-on-one contact during the planning process to help you through this process, 3) publish sources of data from Indian Country that you may want to consult and cite in your needs assessment process, and 4) make available forms that will facilitate the documentation of this step. If you have other suggestions about how we can help, we would like to hear them.

Evaluation

In its updated criteria, the ACCME now requires that "changes in physician competence, performance, or patient outcomes are measured." Not that many years ago, evaluations often consisted of questions asking if the speaker was knowledgeable or if the audiovisuals were useful. In response to pressure from Congress to demonstrate that the substantial investment in CME in the US is producing positive change for the health of Americans, the ACCME adopted criteria that examine actual outcomes. In its mission statement, the CSC has made a commitment to measuring increases in participants' knowledge and competence ("knowledge in action"), and intention to change their practices as a result of having attended. We have been encouraging the use of new evaluation forms that embrace these goals, and most coordinators have been using these on a regular basis. However, in the evaluation summaries written based on the data collected, we have not been as successful in reaching conclusions about the outcomes of these measurements. For example, we would like to see statements to the effect that as a result of having attended, "84% of participants believe they are now capable of utilizing the 'screening and brief intervention' technique for alcohol abuse." While it would be ideal to actually measure increased knowledge and competence or changes in practice behavior – and some do – it is perfectly acceptable to measure perceived

increased knowledge and competence, and intention to change practice.

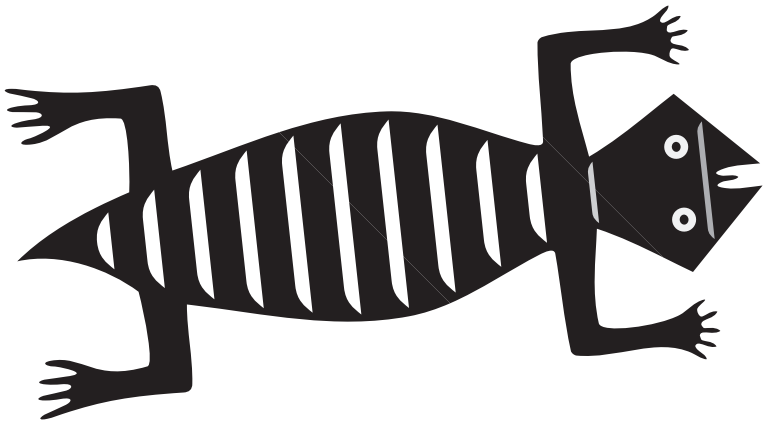
To assist our coordinators with this process, we will make further improvements in our model evaluation tools and continue to post these on our website, and make available some exemplary evaluation summaries that can be used for guidance.

We have come a long way in recent years as we have kept abreast of the evolving requirements of the ACCME, as well as those of the American Nurses Credentialing Center and the American Council on Pharmacy Education. This is the fourth consecutive four-year accreditation we have received from ACCME, and we have had comparable achievements in surveys by ACPE and ANCC. We are grateful for the energy, commitment, and cooperation of our CE coordinators, without whom we would not be able to achieve such consistent success.

Sources of Needs Assessment Data That Can Be Used to Plan CE Activities

The new focus in planning continuing education activities is the identification of gaps in provider knowledge, competence, or performance that can be addressed with your activity. Ideally, these gaps should apply specifically to the American Indian and Alaska Native population and the providers who serve them. Where can you obtain data that help you identify these gaps? From time to time, we will publish items that either give you such data or show you where you can find them. When you are asked about the sources of your needs assessment data in your CE planning process, it will be easy enough to refer to these specific resources.

Try going to the Quality of Care website at (*http://www.ihs.gov/NonMedicalPrograms/quality/*) where you will be able to see graphical representation of selected quality of care measures down to the facility level. These may give you some ideas about indicators that might be amenable to educational interventions. At the Indian Health Performance Evaluation System website (*http://www.ihs.gov/NonMedicalPrograms/ihpes/index.cfm?module=content&option=home*), you can find GPRA and other measurements of performance that may give you needs assessment data.



A PROGRAM FOR CURRENT AND FUTURE INDIAN HEALTH CARE EXECUTIVES

WHAT?
A concentrated executive leadership program designed specifically for current and future leaders. The program will benefit individuals who are either serving in or aspire to be in leadership positions.

WHO WOULD BENEFIT?
Chief Executive Officer · Service Unit Director · Health Director · Medical/Clinical Director · Nursing Executive · Director of Nursing · Administrative Officer

Individuals who are program coordinators or managers of clinical, community, environmental or engineering programs will find this beneficial. The interactive curriculum includes topics that will be integrated through the use of exercises, case studies, and team projects.

Challenges in Indian Health Care
Change and Transition
Personnel
Motivation
Organizational Skills
Personal Vision and Goal Setting
Law
Financing Health Care
Budgets and Financing
Data and Information Technology
Integrity and Ethics
Conflict Resolution
Critical Thinking
Negotiation
Executive Communications
Partnerships, Collaborations
Decision Making
Visionary Strategic Planning
Building Constructive Relationships

WHY?
The purpose of the Executive Leadership Development Program is to provide a forum where participants learn new skills and encounter different approaches to reduce barriers, increase innovation, ensure a better flow of information and ideas, and lead change. The goal is to provide essential leadership training and support for Indian health care executives whether they work in Federal, tribal, or urban settings.

WHO?
Faculty for the Executive Leadership Development Program have been selected from the private, public, and academic sectors. They have experience teaching in executive programs and understand the unique needs of the Indian health care system. Coordination of the Executive Leadership Development Program is through the Indian Health Service, *Clinical Support Center* in Phoenix, Arizona in partnership with different universities and foundations.

HOW?
The Executive Leadership Development Program will be presented in three 4½ day sessions over

12 months. Each session builds on the previous session. Participants should anticipate an intense experience to develop and practice skills to be an effective leader. Independent time is used for reading assignments or working with fellow team members on business simulations, cases, or presentations. At the end of each session, participants will receive certificates of accomplishment from the academic institutions that sponsored the training. After all three sessions have been completed, participants will receive a certificate of completion from the Indian Health Service.

WHEN/WHERE*?

Session One (03/10)	**March 15-19, 2010** Western Management Development Center Aurora, Colorado
Session Two (04/10)	**April 19-23, 2010** Western Management Development Center Aurora, Colorado
Session Three (05/10)	**May 24-28, 2010** Western Management Development Center Aurora, Colorado

*Note: Attendees must enroll for all three sessions.

CONTINUING EDUCATION CREDITS ACCREDITATION

The Indian Health Service (IHS) Clinical Support Center is accredited by the *Accreditation Council for Continuing Medical Education* to sponsor continuing medical education for physicians. The IHS Clinical Support Center designates this continuing education activity for up to 28 hours of Category 1 credit toward the Physician's Recognition Award of the *American Medical Association.* Each physician should claim only those hours of credit he or she actually spent in the education activity.

The Indian Health Service Clinical Support Center is approved by *the American Council on Pharmacy Education* as a provider of continuing pharmaceutical education.

The Indian Health Service is accredited as a provider of continuing education in nursing by *American Nurses Credentialing Center* Commission on Accreditation, and designates this program for 36 contact hours for nurses.

Continuing Education Units for Chief Executive Officers, Administrative Officers, and Dentists designates this program for 36 CEUs.

TUITION

Tuition for all three sessions is **$4500**. The tuition includes three 4½ day-session, books, instructional handouts, leadership assessments, and continuing education credits. Payment should be by tribal organization check or approved SF-182 Form. Travel and per diem are not included in the tuition.

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Commercial Tobacco Prevalence, Perception, and Opinion Among Three California American Indian Tribal Communities

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Introduction

Cigarette smoking is the leading preventable cause of disease and death in the US.[1] It has been well established that commercial tobacco is associated with higher rates of chronic diseases such as lung cancer, heart disease, asthma, and chronic obstructive pulmonary disease. California American Indians and Alaska Natives (AI/AN) are 28% more likely to have tobacco related hospital visits than Whites.[2] Commercial tobacco use has been an ongoing problem among AI/AN across the US. Two recent national tobacco surveys report adult AI/AN smoking prevalence rates at 32.4% and 38.7%, both higher than all other racial groups within their respective reports.[1,3]

California has the largest number of AI/ANs in the country, with over 627,562 residents.[4] There are very few recent studies that analyze smoking rates of AI/AN in California. Data from the 2005 California Health Interview Survey (CHIS) show the smoking prevalence for AI/AN to range from 22.5% to 29.4%.[5] CHIS rates for AI/AN are higher than the statewide average, as well as higher than all other racial groups in the state.

It is important to note traditional tobacco is not the same as harmful and addictive commercial tobacco products (i.e., cigarettes). California tribes have a long history of traditionally grown tobacco for ceremonial and medicinal uses.[6] When used in a sacred and respectful manner, traditional tobacco can assist spiritual guidance and promote good health.[7]

The Tobacco Education and Prevention Technical Support Center (TEPTS), a program of the California Rural Indian Health Board, Inc. (CRIHB) located in Sacramento, California, with support from Centers for Disease Control and Prevention (CDC), administered the American Indian - Adult Tobacco Survey (AI-ATS) in California. The current study assesses commercial tobacco use, secondhand smoke exposure, attitudes toward tribal smoking policies, and risk factor awareness among three American Indian communities, representing 12 tribes in California.

Methods

Project Approval. To ensure participating tribal and tribal health center involvement, CRIHB TEPTS secured tribal approval or health center research committee approval, Memorandums of Agreements (MOA), and Data Sharing Agreements with each of the three survey sites. MOAs and Data Sharing Agreements explained the AI-ATS project and the agreed upon rights, roles, and responsibilities of each agency. CRIHB TEPTS received approval to conduct the AI-ATS and necessary extensions from the National Indian Health Services (IHS) Institutional Review Board (IRB). All data are tribally owned within respective tribal communities. CRIHB TEPTS adheres to confidentiality according to public health research practices.

Survey Instrument. In 2004, prior to survey administration, the state-based Adult Tobacco Survey was pre-tested and validated in AI/AN communities. From this, a culturally appropriate, pre-tested, and piloted CDC survey tool was developed for tribes and AI/AN organizations to effectively gather tobacco prevalence data as well as other tobacco associated information within tribal communities.

Study Population and Data Sources. The California American Indian - Adult Tobacco Survey gathered information from three communities: 1) Big Pine Paiute Tribe of the Owens Valley; 2) Tule River Tribe; and 3) United Indian Health Services, Inc. (UIHS) and their ten member tribes; Bear River Band of the Rohnerville Rancheria, Big Lagoon Rancheria, Blue Lake Rancheria, Cher-Ae Heights Indian Community of the Trinidad Rancheria, Elk Valley Rancheria, Resighini Rancheria, Smith River Rancheria, Table Bluff Reservation - Wiyot Tribe, Yurok Tribe of the Yurok Reservation, and Tolowa Nation.

All entities involved with the survey worked together to reach consensus on sampling methodologies. The CRIHB TEPTS Center, participating tribes, UIHS health center, and CDC agreed upon sampling methods that simultaneously reflected tribal community realities (infrastructure, phone access, and language barriers) yet maintained scientific rigor. Random samples were taken from tribal enrollment lists from two of the three sites; the third site gathered a random sample from participant self-selection lists.

Participants were interviewed from June 2005 to October 2005. Self-reported personal data (e.g., gender, age, years of education, income) were collected along with questions related to commercial tobacco. No identifying personal information

(name, address, social security) was collected on the questionnaire. Participants were age 18 or older. Participants who answered the interviewer administered questionnaires were deemed to have capable cognitive skills by TEPTS staff interviewers. Commercial tobacco use was determined by asking if participants had smoked at least 100 cigarettes in their lifetime. If they answered 'yes' respondents were then asked if they smoked commercial cigarettes every day, some days, or not at all.

Survey Mode. Questionnaires were interviewer-administered. Interviewers were predominantly American Indian and members of California tribes. Training and quality control of interviewers followed American Indian - Adult Tobacco Survey protocol.[8]

Data Analysis. Data were analyzed using SPSS version 16.0. Missing responses were excluded from analysis. Bivariate analysis was used to examine the association of current smokers and non-smokers. Direct logistic regression was used to evaluate the impact of sociodemographic factors on current smoking status.

Results

Among the 390 participants completing the survey, 386 (99%) were included in data analysis. A total of four were excluded from the analysis due to self-reporting racial status other than American Indian/Alaska Native. Of the 386 participants, ages ranged from 18 to 89 years, with a mean age of 43 years.

There were 143 participants who were classified as never smokers, 91 former smokers, 80 sometimes smokers, 66 everyday smokers, and 6 had missing smoking status classification. Everyday smokers and sometimes smokers were combined to create a "Current Smokers" category (n=146), and never smokers and former smokers were combined to create a "Current Non-Smokers" category (n=234). Demographics of smokers are displayed in Table 1. Overall, the prevalence of current smokers was 38%. Men had greater current smoker rates than women (46% vs. 34%). Respondents with a personal income equal to or less than $10,000 had higher current smoker rates than participants with incomes more than $10,000 (49% vs. 32%). The Tule River

Table 1. Number and percentage of AI/AN aged 18 years and older who were current cigarette smokers, by sex and selected characteristics – American Indian Adult Tobacco Survey 2005.

	CURRENT SMOKERS					
	Men		Women		Total	
Total Characteristic	65	46.4%	81	33.6%	146	37.8%
Tribal Communities						
Big Pine	8	50.0%	7	18.4%	15	27.8%
Tule River	29	48.3%	21	33.3%	50	40.7%
United Indian Health Services	28	41.2%	53	37.6%	81	38.9%
Education[Ŧ]						
Less than High School Diploma	20	62.5%	24	50.0%	44	55.0%
High School Diploma/GED	23	43.4%	16	22.9%	39	31.7%
Some College	12	35.3%	32	41.0%	44	39.3%
AA, BA/BS, or Graduate Degree	10	41.7%	9	19.6%	19	27.1%
Age*						
18-29	15	45.4%	19	36.5%	34	39.5%
30-39	16	51.6%	20	42.6%	36	46.2%
40-49	15	42.8%	21	42.0%	36	42.4%
50-59	9	40.9%	16	31.4%	25	34.2%
≥ 60	9	50.0%	4	10.5%	13	23.2%
Income						
≤ $10,000	26	53.1%	34	46.6%	60	49.2%
≥ $10,000	36	43.3%	41	26.8%	77	32.2%

* Those that had an age code of "99" we removed from the age frequency reporting.
Ŧ GED=General Equivalency Diploma (high school), AA=Associate of Arts Degree, BA=Bachelor of Arts Degree, BS=Bachelor of Science Degree.

community had the highest smoking prevalence (41%) followed by UIHS (39%) and Big Pine (28%). Comparing communities by gender, Big Pine men and UIHS women had the highest smoking prevalence of 50% and 38%, respectively.

Of the 103 current smokers 61% reported they want to quit smoking, 27% reported they did not want to quit smoking, and 12% did not know if they wanted to quit. Among current smokers 54% wanted to quit within the next six months and 25% planned on quitting within the next 30 days. Of the 91 former smokers, when asked what method they used when quitting commercial tobacco products, the majority used cold turkey (88%) and/or traditional or native methods (22%). In bivariate tests, there were significant differences on using traditional or native methods to quit smoking among the three communities, with UIHS reporting that 32% of their former smokers used a native or traditional method to quit smoking ($\chi^2 = 9.2$, $p = .01$). There were no significant differences between the three communities on quitting cold turkey ($\chi^2 = 1.1$, $p = .581$). In an optional interview section that was completed only by the Big Pine tribal community, 23% of respondents reported they used tobacco for ceremonial prayer or for traditional reasons.

Among current non-smokers (n=234), 12% report they had been in a car with someone who had been smoking cigarettes in the last seven days, 13% report that someone had smoked inside their home in the past seven days, and 27% of non-smokers report they had at least one person in their home who was a smoker. Of current non-smokers who worked outside the home (n=112), 21% said they were exposed to secondhand smoke in the building where they worked in the past seven days.

There was varied opinion on tobacco policy. Table 2 reveals that respondents significantly differ in belief when asked if smoking should be allowed in "casinos or bingo halls," "community centers," and "indoor work areas" with respect to smoking status and personal opinion within each area of these indoor locations. Current non-smokers favor smoke-free restrictions more than smokers. The majority of both current smokers and non-smokers agreed on having smoke-free indoor work areas, but when asked specifically about smoking in casinos and bingo halls, a lower percentage of respondents agreed to smoking restrictions (current non-smokers 84% vs. 52%, current smokers 72% vs. 22%). Smoking within "tribal buildings" was not significant, regardless of smoking status

Table 2. Comparison of the attitudes toward commercial tobacco policies of AI/AN adults by smoking status. [1]

Do you think smoking should be allowed in all, some or no areas of the following locations?	SMOKING STATUS		
	Current Non Smoker	**Current Smoker**	c2
	(n=236)	(n=148)	
Indoor work areas			
All	0.9%	4.3%	
Some	15.4%	24.1%	9.8**
None	83.8%	71.6%	
Tribal Buildings			
All	0.4%	1.4%	
Some	9.3%	14.6%	3.6
None	90.3%	84.0%	
Community Centers			
All	0.4%	4.8%	
Some	4.4%	11.7%	15.7**
None	95.1%	83.4%	
Casinos & Bingo Halls			
All	3.5%	20.1%	
Some	44.3%	57.6%	47.2**
None	52.2%	22.2%	

* = p value < .05
** = p value < .01
[1] Percentages are rounded to the nearest whole number which may not add up to 100%.

Table 3. Logistic regression of sociodemographic variables in AI/AN adults who are current smokers.

VARIABLE	*p*	Odds Ratio	95% CI Lower	95% CI Upper
Tribal Communities	0.19			
Unite Indian Health Services	0.15	0.58	0.28	1.21
Big Pine	0.16	0.68	0.40	1.16
Tule River				
Sex				
Female	0.02*	1.75	1.09	2.79
Male				
Age	0.14			
18-29	0.50	1.27	0.64	2.50
30-39	0.63	1.18	0.61	2.27
40-49	0.99	1.00	0.48	2.07
50-59	0.06	0.44	0.19	1.02
≥60				
Education[Ŧ]	0.04*			
Less than High School Diploma	0.03*	0.49	0.26	0.92
High School Diploma/GED	0.12	0.59	0.30	1.15
Some College	0.01*	0.32	0.14	0.73
AA, BA/BS, or Graduate Degree				
Income				
<$10,000	0.06	0.62	0.38	1.01
>$10,000				

Referent groups within variables are United Indian Health Services, female, age 18-29, less than high school and personal income equal or less than $10,000.
* p value < .05
[Ŧ] GED=General Equivalency Diploma (high school), AA=Associate of Arts Degree, BA=Bachelor of Arts Degree, BS=Bachelor of Science Degree.

and personal opinion.

Commercial tobacco risk perception was assessed between current non-smokers and current smokers in Table 3. In general, current non-smokers were more likely to agree that health risks from smoking and secondhand smoke were harmful to health, when compared to smokers (38% to 93% versus 23% to 80%, respectively). Significant differences between non-smokers and smokers were found in belief of harm when breathing smoke from other people's cigarettes and knowledge that breathing smoke from cigarettes causes lung cancer, heart disease, colon cancer, respiratory problems, and sudden infant death syndrome (SIDS). A greater percentage of current non-smokers knew breathing secondhand smoke was very harmful to health when compared to smokers (82% vs. 52%). A high percentage of both non-smokers and smokers knew lung cancer and respiratory problems were caused by breathing other people's cigarette smoke. Conversely, both non-smokers and smokers had low knowledge that secondhand smoke is a risk factor for colon cancer and SIDS.

Direct logistic regression was performed with current smoking status as the dependent variable in Table 3. The two categories were current non-smoker and current smoker; with non-smokers as the reference group. The five categorical independent variables include tribal community, gender, age, highest level of education, and personal income. Smokers were more likely to be male and not have completed high school when compared to non-smokers. Specifically, males were over 1.7 times more likely to be smokers than females (95% CI: 1.09 - 2.79). Current non-smokers were over two times more likely to have a high school degree or general equivalency diploma, and over three times more likely to have an associate degree, bachelors degree, or some form of post-

secondary degree, when compared to their smoking counterparts (95% CI: 1.08 - 3.85; 95% CI: 1.36 - 6.99; respectively). No significant differences were found between smokers and non-smokers for age, income level, or tribal communities.

Discussion

A limitation should be noted in the current study, due to one of the sites utilizing a different randomization sampling methodology. Instead of randomly selecting participants from tribal rolls, the UIHS site randomly selected volunteer participants. Boxes were placed at six UIHS health center clinic locations into which tribal members wanting to participate submitted name and contact information.

Two of the three communities (Tule River and UIHS) had smoking rates much greater than California state survey data for all AI/AN; the Big Pine Community had prevalence similar to state rates.[5]

Across all communities, well over half of the current smokers reported they wanted to quit, and of those, approximately half within the next six months. Because the majority of smokers show a willingness to quit, communities could benefit from culturally appropriate commercial tobacco cessation programs and/or utilization of the California Smokers' Helpline by smokers. Using traditional and cultural methods to quit smoking can also benefit tribal populations.

In all three communities, approximately 1 in 5 non-smokers were exposed to secondhand smoke at work. As tribes are sovereign nations, they are not subject to federal or state indoor smoking restrictions. Table 2 shows the majority of respondents agreed smoking should not be allowed in indoor working areas; however, they significantly differ in opinion with regard to favoring smoke-free casinos and bingo halls. Since casinos and bingo halls are the same as indoor work areas, results show that gaming facilities are perceived as somehow different. There is a need to change community perception on secondhand smoke exposure. A recent publication addresses the dynamics of advocating for smoke-free California casinos. Two well established and long standing California tribal health organizations offer insight and useful information on how non-Native entities can work with California gaming tribes.[9]

Nearly 1 in 4 Big Pine tribal community respondents use tobacco for traditional reasons and/or ceremonial prayer. It is imperative to educate youth and adult community members on the difference between harmful commercial tobacco abuse and ceremonial/traditional use tobacco, as well as respect for traditional tobacco. The TEPTS Center supports traditional tobacco garden projects that grow tobacco for cultural and ceremonial use that also involve and educate Native youth within California tribal and rural communities.

Table 4 shows smokers were less likely than non-smokers to know, or acknowledge the health consequences of secondhand smoke. Although known secondhand smoke health risks knowledge of lung cancer and respiratory problems was high among both smokers and non-smokers, there was overall lower knowledge of lesser known health risks of colon cancer, SIDS, and to some extent heart disease. Tribal clinics could provide clients and patients with additional information on lesser known health risks of commercial tobacco use. This in turn may offer more incentive for smokers to quit.

Culturally specific commercial tobacco education is an important tool with regard to prevention, intervention, and cessation programs within Native communities. In recent years there have been great strides in Native American wellness and sobriety programs. However, commercial tobacco abuse has not been a focus in substance abuse programs. The Family and Child Guidance Clinic at the Native American Health Center in Oakland, California has developed a Holistic System of Care model that is a community-focused intervention that integrates mental health and substance abuse systems with evidence-based practices and practice-based evidence intertwined with Native cultural practices.[10,11] The Holistic Model could be adapted to help California AI/AN smokers quit and remain smoke-free.

Each of the three communities in the current study were provided technical assistance by CRIHB TEPTS in interpreting results as well as with presentations of general findings to community health and administration staff. Individual community results can empower the participating tribes to enhance tobacco education programs and grant opportunities.

In conclusion, the current study mirrors findings of other regional and national studies that show AI/AN commercial tobacco usage and exposure rates greater than all other racial groups. More people will die each year from commercial tobacco abuse than by all deaths from human immunodeficiency virus (HIV), illegal drug use, alcohol use, motor vehicle injuries, suicides, and murders combined.[12] Significant accomplishments through AI/AN specific tobacco programs have been made in recent years. However, progress is needed to create changes in community norms similar to the successes of AI/AN specific alcohol and illicit drug prevention, intervention, and treatment programs. Commercial tobacco abuse needs to be treated with equal perception of harm in AI/AN communities, to that of alcohol and illicit drug abuse. Grassroots community action will play a leading role in turning the tide of commercial tobacco harm reduction and elimination within AI/AN communities. It will take a consolidated effort by health care providers, tribal governments, spiritual leaders, community helpers, and family members across all generations, to be able to reduce and eliminate commercial tobacco abuse and exposure among Native people.

Table 4. Percentage of perceived health risk due to smoking and commercial tobacco exposure for AI/AN adults by smoking status.

VARIABLE	SMOKING STATUS		
	Current Non Smoker	Current Smoker	c2
If a person has smoked a pack of cigarettes every day for 20+ years, there is no health benefit to quitting			
Strongly Agree	10.0%	6.2%	
Agree	15.3%	13.7%	
Disagree	39.3%	46.6%	4.1
Strongly Disagree	28.8%	24.7%	
Don't Know	6.6%	6.8%	
Do you think breathing smoke from other people's cigarettes is:			
Very harmful to health	81.9%	52.5%	
Somewhat harmful to health	16.3%	38.8%	45.5*
Not very harmful to health	<0.1%	7.2%	
Not harmful at all to health	1.3%	1.4%	
Do you think breathing smoke from other people's cigarettes causes: Lung Cancer?			
Yes	84.6%	71.7%	
No	3.5%	13.8%	14.8**
Don't Know	11.8%	14.5%	
Heart Disease?			
Yes	69.4%	56.6%	
No	8.7%	21.4%	12.7**
Don't Know	21.8%	22.1%	
Colon Cancer?			
Yes	38.2%	23.4%	
No	17.5%	31.7%	13.6**
Don't Know	44.3%	44.8%	
Respiratory Problems?			
Yes	93.4%	80.0%	
No	1.8%	7.6%	15.9**
Don't Know	4.8%	12.4%	
SIDS?			
Yes	46.9%	28.3%	14.0**
No			
Don't Know			

* = p value < .05
** = p value < .01

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The authors acknowledge the assistance and cooperation of the Big Pine Paiute Tribe of the Owens Valley, Tule River Tribe, and United Indian Health Services, Inc. and their ten member tribes; Bear River Band of the Rohnerville Rancheria, Big Lagoon Rancheria, Blue Lake Rancheria, Cher-Ae Heights Indian Community of the Trinidad Rancheria, Elk Valley Rancheria, Resighini Rancheria, Smith River Rancheria, Table Bluff Reservation–Wiyot Tribe, Yurok Tribe of the Yurok Reservation, and Tolowa Nation American Indian communities, without whose support this study would not have been possible. Special thanks to Karen Garcia, MPH, (Maidu and Apache Tribes) for preliminary data analysis contributions; Carol Korenbrot, PhD for manuscript planning and direction; and Serena Wright, MPH for final editing. This study was conducted by cooperative agreement grants (Implementation 5U1ADP925117 and Capacity 5U1ADP925118) from the Office on Smoking and Health of the Centers for Disease Control and Prevention. The opinions expressed in this paper are those of the authors and do not necessarily reflect those of the California Rural Indian Health Board, Inc. or the Centers for Disease Control and Prevention.

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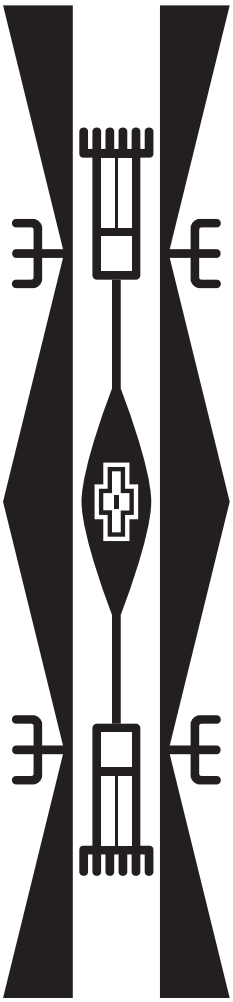


Continuing Medical Education Opportunity

1st Annual IHS Adolescent Health Conference

November 13-14, 2009

Navajo Nation Museum

Window Rock, AZ

Topics included:

- Suicide prevention
- Reproductive health
- STD prevention
- Obesity management
- Mental health
- School-based care
- Pregnancy Options
- Young Men's Health

Registration is free.

Contact: Andrew Terranella at andrew.terranella@ihs.gov

928-697-4203

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

"To be good is noble, but to show others how to be good is nobler, and no trouble."

Mark Twain

Articles of Interest

The Crying Infant: Diagnostic Testing and Frequency of Serious Underlying Disease. *Pediatrics*. March 2009;123:841-848.

Crying in infancy is normal; the average six-week old infant cries three hours a day with the peak hours of crying between 3 PM and 11 PM. Unfortunately, while crying is normal, it can also be a symptom of serious, underlying illness. How worried should we be with a complaint of excessive crying in an infant?

The authors looked at 237 afebrile infants who presented to the emergency department with a chief complaint of crying, irritability, screaming, colic, or fussiness. Only 5% of the infants had a serious underlying illness. Two-thirds of the time the correct diagnosis was made by history and physical alone. In another one quarter the diagnosis was made by tests suggested by the history and physical. In 10% the diagnosis was made by testing alone. These two patients had urinary tract infections and both were less than one month old.

The authors conclude that serious underlying illness is found in about 5% of excessively crying infants. Laboratory investigation without a suggestive history was rarely helpful. The one exception was urinalysis in young infants, especially if they were less than one month of age. In this scenario, 10% of the tested urine samples indicated disease.

Editorial Comment

Urinary tract infections are the most common serious bacterial illness in infants. This is true for neonates with fever and infants with fever. It appears to also be true for crying infants. When in doubt, check the urine.

Recent literature on American Indian/Alaskan Native Health
Michael Bartholomew, MD

Dr. Yvette Roubideaux was nominated on March 23, 2009, confirmed by the US Senate on May 6, 2009, and sworn in as the eighth Director of the Indian Health Service on May 12, 2009. The three journal articles below give a brief illustration of the extensive research on American Indian health issues that Dr. Roubideaux has conducted to date, specifically on diabetes and American Indian health policy.

Roubideaux Y, Noonan C, Goldberg JH, et al. Relation between the level of American Indian and Alaska Native Diabetes Education Program services and quality-of-care indicators. *Am J Public Health*. 2008;98:20079-2084.
http://www.ncbi.nlm.nih.gov/pubmed/18511737?ordinalpos=1&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum

This cross sectional study is the first to examine the association between the levels of diabetes education services provided in the Indian Health Service and the quality of diabetes care received. The authors utilized the IHS Integrated Diabetes Education Recognition Program (IDERP) to rank program services and to compare different levels of service with quality of care indicators to determine if more comprehensive services yielded better quality of diabetes care. The IDERP is a program designed to evaluate the quality of diabetes education services by assessing the extent to which programs implement the ten National Standards for Diabetes Self-Management Education. IDERP then ranks programs based on levels of integrated services. Of the 86 participating programs, 77 (89%) programs were designated at a Level 1 (Developmental) for program services. Four programs were at Level 2 (Educational), while 5 programs were ranked at Level 3 (Integrated). Educational and Integrated programs had higher percentages of patients with completed diabetes quality of care indicators; annual examinations, laboratory tests, immunizations, and education. After adjustment for patient and program factors only Lipid Screening and Hemoglobin A1C were associated with more comprehensive programs. The authors concluded that "although most of the outcomes we examined were not significantly different by IDERP ranking, the pattern of finding across all outcomes was consistent with our original hypothesis that higher-level programs would have better quality of diabetes care." This baseline assessment provides incentive for programs to participate in IDERP and implement the National Standard of Diabetes Self-Management Education.

Roubideaux, Y. Beyond Red Lake - The persistent crisis in American Indian health care. *N Engl J Med*. 2005 Nov 3;353(18):1881-3.
http://www.ncbi.nlm.nih.gov/pubmed/16267317?ordinalpos=3

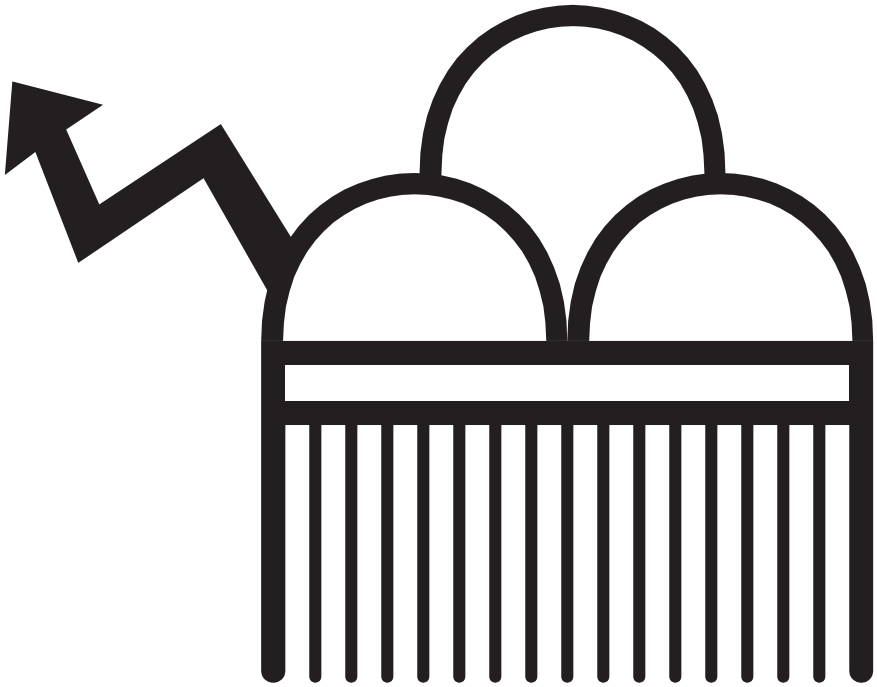
&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum

Roubideaux, Y. Perspectives on American Indian health. *Am J Public Health*. 2002;92:1401-1403. *http://www.ncbi.nlm.nih.gov/pubmed/12197964?ordinalpos=45&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum*

Both articles provide insight into Dr. Roubideaux's view on American Indian health, American Indian health policy, and her prior experiences as a medical officer/clinical director in Indian Country.

Locums Tenens and Job Opportunities

If you have a short or long term opportunity in an IHS, tribal or urban facility that you'd like us to publicize (i.e., AAP Web site or complimentary ad on Ped Jobs, the official AAP on-line job board), please forward the information to *indianhealth@aap.org* or complete the on-line locum tenens form at *http://www.aap.org/nach/locumtenens.htm.*



MEETINGS OF INTEREST

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*.

Training Conference on the Treatment of Trauma: "Re-Making the World of the Trauma Survivor"
October 2 - 3, 2009; Flagstaff, Arizona

Hosted by The Hopi Foundation, this cutting edge two-day conference has been organized to provide clinical and empirically based techniques and approaches to practitioners working with two sets of population groups affected by trauma: Native American war veterans, and survivors of political torture. Acknowledged world-class experts are providing the training, including Drs. Judith Herman, Maria Yellow Horse Brave Heart, Spero Manson, Richard Mollica, and Terence Keane. Innovative workshop sessions are intensive and present the subject matter in considerable depth offering dynamic, didactic, and interactive learning experiences. The Indian Health Service (IHS) Clinical Support Center is accredited by the Accreditation Council for Continuing Medical Education to sponsor continuing medical education for physicians. The IHS Clinical Support Center designates this educational activity for a maximum of 11 *AMA PRA Category 1 Credit(s)*™. This Category 1 credit is accepted by the American Academy of Physician Assistants and the American College of Nurse Midwives. The Indian Health Service Clinical Support Center is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation. This activity is designated 11.0 contact hours for nurses. The Arizona Psychological Association is offering up to 26 Credit Education hours for psychologists and therapists. Continuing Education Units are offered to social workers and counselors by Arizona State University. For more information and conference registration, go to the website at *www.barbarachesteraward.org* or e-mail *information@barbarachesteraward.org*.

Ninth Annual Tribal Clinical Cancer Update
October 28, 2009; Portland, Oregon

The Northwest Tribal Comprehensive Cancer Program will be presenting the Ninth Annual Northwest Tribal Clinicians' Update at the Northwest Portland Area Indian Health Board in Portland, Oregon from 8 am to 5:10 pm Wednesday, October 28, 2009. The topic this year is "Successful Cancer Patient Management." The conference will provide information on cancer data and surveillance; prostate, colorectal, liver, and lymphoma cancers; model tobacco prevention and cessation programs; and palliative care. There is no registration fee for Indian Health Service or tribal employees. The conference is suited for clinical staff with an interest in cancer. Program and registration materials are available at *http://www.npaihb.org/calendar/event/1170*. The conference is sponsored by the Indian Health Service Clinical Support Center which is accredited by the Accreditation Council for Continuing Medical Education (ACCME), the American Nurses Credentialing Center Commission on Accreditation (ANCC), and the American Council on Pharmacy Education (ACPE) to sponsor continuing medical education for physicians, nurses, and pharmacists. For more information, please contact Eric Vinson at (503) 416-3295 or *evinson@npaihb.org*.

Second Annual Cardiovascular Disease Update
October 29 – 30, 2009; Scottsdale, Arizona

The Native American Cardiology Program will be presenting the Second Annual Cardiovascular Disease Update at the Chaparral Suites in Scottsdale, Arizona beginning midday on Thursday, October 29 running through Friday afternoon, October 30, 2009. The topic this year is "Successful Management of The Cardiovascular Patient." The conference will provide practical approaches to the evaluation and management of common cardiac conditions encountered by primary providers, including atrial fibrillation, chronic angina, heart failure, arrhythmias, acute coronary syndromes, peripheral vascular disease, and stroke. There will be no registration fee for Indian Health Service or tribal employees. The conference is directed at clinical staff with an interest in cardiovascular disease. Program and registration material will be available by August. The Indian Health Service Clinical Support Center is the accredited sponsor. For more information, please feel free to contact *lkoepke@umcaz.edu* or *bmalasky@umcaz.edu*.

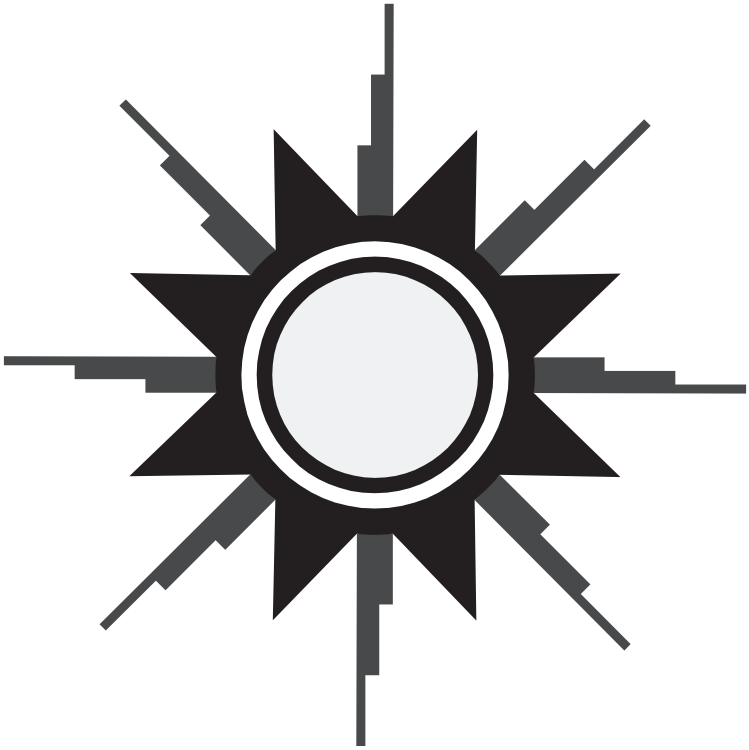
Diabetes Management System
November 3 - 5, 2009; Portland, Oregon

The Northwest Portland Area Indian Health Board (NPAIHB) periodically conducts trainings in using the Diabetes Management System package of the Resource and Patient Management System (RPMS). Participants receive hands-on instruction in the DMS package for RPMS in both the "roll and scroll" interface and the Visual DMS graphical user interface (GUI). Topics include building and maintaining diabetes and pre-diabetes registers, editing patient information,

and running register and quality assurance reports. Additional topics include using QMAN for custom searches to meet needs that commonly arise for diabetes programs, creating panels of patients in iCare, and performing the annual IHS Diabetes Audit with WebAudit. Instruction is hands-on using a training server with mock patient data. For more information or to register, email *wtdp@npaihb.org*, or call Don Head or Katrina Ramsey at 1-800-862-5497. You can also visit the NPAIHB website at *http://www.npaihb.org/training/npaihb_training*.

The First Annual IHS Adolescent Health Conference
November 13 - 14, 2009; Window Rock, Arizona

The Navajo Area, Kayenta Service Unit, and the Adolescent Reproductive Health Project will host the first Annual Adolescent Health Conference in Window Rock, Arizona, November 13 - 14, 2009. Hear nationally recognized speakers on topics, including suicidality and mental health, obesity management, reproductive health and STDs, young men's health, caring for gay and lesbian youth, and pregnancy counseling. This conference is aimed at general pediatricians, family practitioners, physician assistants, and nurse practitioners who care for adolescents in their practices. The speakers will focus on current research and practices to help improve adolescent services to Native American youth. Registration is free; details will be found here next month. In the meantime, for more information, please contact the conference director, Andrew Terranella, MD, at *andrew.terranella@ihs.gov*; telephone (928) 697-4203.



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/Pediatric Nurse Practitioner for School Health Program
Nurse Practitioner for San Simon Health Center
Sells Service Unit; Sells, Arizona

The Sells Service Unit (SSU) in southern Arizona is recruiting for a family/pediatric nurse practitioner for our school health program. The SSU is the primary source of health care for approximately 24,000 people of the Tohono O'odham Nation. The service unit consists of a Joint Commission accredited 34-bed hospital in Sells, Arizona and three health centers: San Xavier Health Center, located in Tucson, the Santa Rosa Health Center, located in Santa Rosa, and the San Simon Health Center located in San Simon, Arizona, with a combined caseload of approximately 100,000 outpatient visits annually. Clinical services include family medicine, pediatrics, internal medicine, prenatal and women's health care, dental, optometry, ophthalmology, podiatry, physical therapy, nutrition and dietetics, social work services, and diabetes self management education.

Sixty miles east of the Sells Hospital by paved highway lies Tucson, Arizona's second largest metropolitan area, and home to nearly 750,000. Tucson, or "The Old Pueblo," is one of the oldest continuously inhabited sites in North America, steeped in a rich heritage of Indian and Spanish influence. It affords all of southern Arizona's limitless entertainment, recreation, shopping, and cultural opportunities. The area is a favored tourist and retirement center, boasting sunbelt attributes and low humidity, with effortless access to Old Mexico, pine forests, snow sports, and endless sightseeing opportunities . . . all within a setting of natural splendor.

We offer competitive salary, relocation/recruitment/retention allowance, federal employment benefits package, CME leave and allowance, and loan repayment. Commuter van pool from Tucson is available for a monthly fee. For more information, please contact Peter Ziegler, MD, SSU Clinical Director at (520) 383-7211 or by e-mail at *Peter.Ziegler@ihs.gov*. (9/09)

Family Practice Physician
SouthEast Alaska Regional Health Consortium; Juneau, Alaska

The SEARHC (SouthEast Alaska Regional Health Consortium) Clinic in Juneau, Alaska has an excellent opportunity for a family physician with obstetrics skills to join a medical staff in a unique clinic and hospital setting. Have the best of both worlds in a practice where we share hospitalist duties and staff an outpatient clinic with excellent quality of life. We have the opportunity to practice full spectrum family medicine. Southeast Alaska has amazing winter and summer recreational activities. Enjoy Alaska's capital with access to theater, concerts, and annual musical festivals. Join a well rounded, collegial medical staff with generous benefits. For information contact Dr. Cate Buley, (907) 364-4485; *cbuley@searhc.org* or *www.searhc.org*. (9/09)

Family Medicine, Internal Medicine, Emergency Medicine Physicians
Sells Service Unit; Sells, Arizona

The Sells Service Unit (SSU) in southern Arizona is recruiting for board certified/board eligible family medicine, internal medicine, and emergency medicine physicians to join our experienced medical staff. The Sells Service Unit is the primary source of health care for approximately 24,000 people of the Tohono O'odham Nation. The service unit consists of a Joint Commission accredited 34-bed hospital in Sells, Arizona and three health centers: San Xavier Health Center, located in Tucson, the Santa Rosa Health Center, located in Santa Rosa, and the San Simon Health Center located in San Simon, with a combined caseload of approximately 100,000 outpatient visits annually. Clinical services include family medicine, pediatrics, internal medicine, prenatal and women's health care, dental, optometry, ophthalmology, podiatry, physical therapy, nutrition and dietetics, social work services, and diabetes self-management education.

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Internal Medicine Hospitalists
Physicians Assistants/Nurse Practitioners
Pine Ridge Service Unit; Pine Ridge, South Dakota

The Pine Ridge Service Unit is seeking enthusiastic health care practitioners to come work with their current staff on the Pine Ridge Indian Reservation. The Pine Ridge Service Unit consists of a hospital located in Pine Ridge and two independently-staffed satellite clinics in Kyle and Wanblee, South Dakota.

The hospital is a multidisciplinary facility that includes inpatient, outpatient, urgent care, emergency, dental, behavioral health, pharmacy, ob/gyn, surgery, optometry, podiatry, pharmacy, and physical therapy services. The facility is currently seeking to strengthen the services and staff to ensure quality care for our population of 45,000 beneficiaries.

Pine Ridge is located just south of both the Black Hills and Badlands of South Dakota so the outdoor activity possibilities are unlimited. There are two colleges within fifty miles, and Rapid City, with its variety of cultural opportunities, is within ninety miles.

If you are interested in a challenging position with the opportunity to have a positive effect on developing and building health care services, please contact Jan C. Colton, DMD, PhD, Acting Clinical Director, Pine Ridge PHS Hospital, 1201 E. Highway 18, Pine Ridge, South Dakota, 57770; telephone (605) 867-3019. (9/09)

Physician
Puyallup Tribal Health Authority; Tacoma, Washington

The Puyallup Tribal Health Authority is currently recruiting a full time physician to join a team of nine other physicians. PTHA is a tribally operated, ambulatory clinic located in Tacoma, Washington and is accredited by AAAHC, CARF, and COLA. This position will evaluate, diagnose, and treat medical, obstetric, psychiatric, and surgical diseases and emergencies as credentialed and privileged; oversee the medical evaluation, diagnosis, and treatment of patients by other medical professionals, including precepting midlevel providers as needed; perform histories, physicals, and direct the evaluation, diagnosis, and treatment of PTHA patients in local hospitals including participation in rounding schedule; make referrals to specialists as per PTHA protocol and follow-up to assure quality care; provide on-site health education and counseling to patients and staff; participate in after-hours on-call duty as scheduled; provide back-up consultation to other on-call PTHA providers as scheduled; participate in utilization review studies and quality improvement committee as assigned.

Minimum requirements include a Doctorate of Medicine or Osteopathy from an accredited institution; board certified (or eligible to sit for exam) in family practice or appropriate field; licensed to practice medicine in the state of Washington; and current certification in ACLS. PTHA offers a competitive salary, benefits, and generous time off schedule.

To apply, a PTHA employment application is required (resume optional). Please submit completed applications to the Human Resource Department prior to the closing date. Indian hiring preference by law. Telephone (253) 593-0232, ext 516; fax (253) 593-3479; e-mail *hr@eptha.com*; website *www.eptha.com*. The address is PTHA Human Resource Department, KCC bldg #4, 1st Floor, 2209 E. 32nd St. Tacoma, WA 98404. (8/09)

Family Practice Physician
Pharmacist
PHS Clinics; Wind River Service Unit, Wyoming

This is the primo IHS opportunity. Two family physicians will be retiring in January to split a position between them, leaving a hiring opportunity for this progressive and stable seven-physician group (six FP and one pediatrician). We admit patients to the Lander Regional Hospital on a 1/7 on-call basis and staff two clinics on the reservation, along with four nurse practitioners. The Wind River Reservation is home to the Northern Arapaho and Eastern Shoshone Tribes. Local cultural opportunities abound, and the medical practice is fascinating and challenging.

The physicians tend to live in Lander, which is located adjacent to the Wind River Indian Reservation. Lander was featured in Sunset Magazine as one of "The West's Twenty Best Small Towns" and has been featured in the book "Best Small Towns in America." It is located next to the Wind River Mountains, which offer a spectacular chance for world class climbing, hiking, outfitting, fishing, and hunting. Lander is progressive and is the world headquarters for the National Outdoor Leadership School. Next fall, Lander High School graduates will attend MIT, Duke, and Princeton. The IHS physicians enjoy a great relationship with the private physicians in town, and the hospital sports the latest generation MRI, CT, and nuclear medicine capabilities. This is the kind of IHS medical staff that physicians join and end up staying for ten to twenty years. Board eligible/certified applicants only, please. E-mail CV to Paul Ebbert, MD at *paul.ebbert@ihs.gov* or call him at work at (307) 856-9281 or at home at (307) 332-2721.

The Wind River Service Unit also has an opening for a pharmacist. Pharmacists at Wind River enjoy a close professional relationship with the medical staff. There is interest and opportunity for pharmacists to expand their skills into enhanced patient education and management. Interested candidates should contact Marilyn Scott at

marilyn.scott@ihs.gov or call (307) 332-5948. (6/09)

Family Physician
Staff Dentist
Consolidated Tribal Health Project, Inc.; Calpella, California

The Native American Health Center in northern California wine country is seeking a doctor and a dentist to join our dedicated team. For twenty five years, Consolidated Tribal Health Project, Inc. has been providing health, dental, behavioral health, and community outreach services to the eight consortium tribes of Mendocino County.

We are seeking two providers:

- Family Practice Physician, BC/BE, to provide direct patient care (90%) and administration (10%)
- Staff Dentist to provide comprehensive, public health oriented dental services and all general clinic services

Candidates must currently hold a California license. Qualified applicants, please fax resume, cover letter, and salary requirements to Human Resources at (707) 485-7837. For the right candidate, we offer a competitive salary, excellent benefits, and an opportunity for loan repayment. Native American preference in hiring; all qualified applicants will be considered. For more information, please contact Annie Kavanagh at (707) 467-5685, or by e-mail at *akavanagh@cthp.org*. (6/09)

Family Medicine Physicians
Internal Medicine Physicians
Emergency Medicine Physicians
Sells Service Unit; Sells, Arizona

The Sells Service Unit (SSU) in southern Arizona is recruiting for board certified/board eligible family medicine, internal medicine, and emergency medicine physicians to join our experienced medical staff. The SSU is the primary source of health care for approximately 24,000 people of the Tohono O'odham Nation. The service unit consists of a Joint Commission accredited 34-bed hospital in Sells and three health centers: San Xavier Health Center, located in Tucson, Arizona, the Santa Rosa Health Center, located in Santa Rosa, Arizona, and the San Simon Health Center located in San Simon, Arizona, with a combined caseload of approximately 100,000 outpatient visits annually. Clinical services include family medicine, pediatrics, internal medicine, prenatal and women's health care, dental, optometry, ophthalmology, podiatry, physical therapy, nutrition and dietetics, social work services, and diabetes self-management education.

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Family Nurse Practitioners
San Simon Health Center, Sells Service Unit; Sells, Arizona

The Sells Service Unit (SSU) in southern Arizona is recruiting for a family nurse practitioner to provide ambulatory care in the recently opened San Simon Health Center and another family or pediatric nurse practitioner to provide ambulatory care in our school health program. The SSU is the primary source of health care for approximately 24,000 people of the Tohono O'odham Nation. The service unit consists of a Joint Commission accredited 34-bed hospital in Sells and three health centers: San Xavier Health Center, located in Tucson, the Santa Rosa Health Center, located in Santa Rosa, and the San Simon Health Center located in San Simon, with a combined caseload of approximately 100,000 outpatient visits annually. Clinical services include family medicine, pediatrics, internal medicine, prenatal and women's health care, dental, optometry, ophthalmology, podiatry, physical therapy, nutrition and dietetics, social work services, and diabetes self management education.

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Internal Medicine/Hospitalist
Phoenix Indian Medical Center; Phoenix, Arizona

The Internal Medicine department is recruiting for a

hospitalist, BC/BE in either Internal Medicine or Family Medicine, at the Phoenix Indian Medical Center; position available now. PIMC is one of the largest sites in the IHS, with over 150 multi-specialty physicians. Our five-member hospitalist group provides both general medical and intermediate level care for approximately 40 hospitalized patients. Very reasonable schedule with 40 - 45 hour weeks. Electronic Health Record is being implemented. This position would be open to either a civil service or Commissioned Corps physician. The Phoenix metropolitan area offers a variety of cultural, sports, educational, and family-oriented opportunities.

For more information, please contact/send CV to Amy Light MD, Chief of Medicine, Phoenix Indian Medical Center, 4212 North 16th Street, Phoenix, Arizona 85016. Telephone (602) 263-1537; fax (602) 263-1593 or e-mail *amy.light@ihs.gov*. (4/09)

Psychiatrist
White Earth Health Center; White Earth, Minnesota

The White Earth Health Center is currently recruiting a psychiatrist to provide psychiatric assessment for diagnosis of mental health disorders for children, adolescents, and adults and provide medication management services to children, adolescents, and adults, in an outpatient setting. The White Earth Health Center is located in central Minnesota. Enjoy four seasons filled with plenty of lakes for fishing, swimming, canoeing, skiing, skating; area fitness centers; shopping, hunting, snowmobiling, four-wheeling, clear skies, golf courses, horse trail rides.

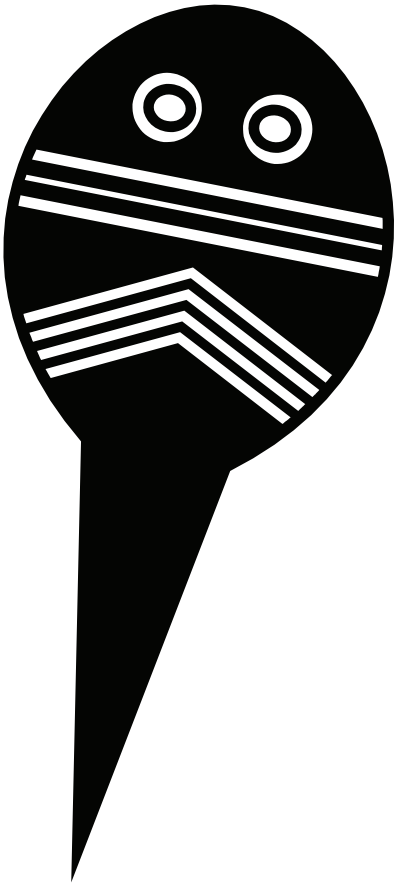
The ideal candidate for this position will be an outgoing, energetic team player who is compassionate and focused on patient care. This individual will be working in a beautiful, modern facility. For the right candidate, we offer a competitive salary, excellent benefits, and an opportunity for loan repayment. Please contact Darryl Zitzow, PhD, LP, Director, Mental Health Department, telephone (218) 983-6325; fax (218) 983-6336); or e-mail *darryl.zitzow@ihs.gov* for further information. The mailing address is White Earth Health Center, 40520 County Highway 34, Ogema, Minnesota 56569. (4/09)

Family Practice Physician
Nurse Practitioner
Pawhuska IHS Health Center; Pawhuska, Oklahoma

The Pawhuska IHS Health Center has openings for a family practice physician and a nurse practitioner. Our facility is a JCAHO accredited, multidisciplinary outpatient clinic with medical, dental, optometry, behavioral health, an on-site lab, and pharmacy. Our medical staff enjoy regular work hours with no night or weekend call.

Pawhuska is located 55 miles from Tulsa, Oklahoma. It is home to the Osage Nation, with a rich heritage of tribal culture, oil money, and even cowboys. So if you have a passion for small town life on the plains, you may want to check us out.

Interested parties can contact Wehnona Stabler, 715 Grandview, Pawhuska, Oklahoma 74056; telephone (918) 287-4491; or e-mail to *wehnona.stabler@ihs.gov*. (2/09)



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City/State/Zip _____

Worksite: ☐ **IHS** ☐ **Tribal** ☐ **Urban Indian** ☐ **Other**

Service Unit (if applicable) _____ **Last Four Digits of SSN** _____

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Old Address _____

THE IHS PRIMARY CARE PROVIDER

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

THE IHS PROVIDER is published monthly by the Indian Health Service Clinical Support Center (CSC). Telephone: (602) 364-7777; fax: (602) 364-7788; e-mail: *the.provider@ihs.gov*. Previous issues of THE PROVIDER (beginning with the December 1994 issue) can be found on the CSC Internet home page *(http://www.ihs.gov/Provider)*.

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Cheryl Begay .....Production Assistant
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Edward J. Stein, PharmD .....Pharmacy Consultant

Opinions expressed in articles are those of the authors and do not necessarily reflect those of the Indian Health Service or the Editors.

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