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Appropriate Exercise Prescription for Patients with Diabetes Mellitus

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While the importance of a regular program of physical activity and exercise in the maintenance of ideal body weight, cardiovascular fitness, and overall health has been well recognized, recent studies1 have emphasized the role of exercise as an effective therapeutic intervention in many patients with or at risk for the development of diabetes mellitus.^{2,3,4} However, as with any therapeutic intervention, its indications, contraindication, interactions, and limitations must be clearly understood. This article will review the current recommendations for exercise prescription for our patients with diabetes mellitus as set forth by the American Diabetes Association as an aid for our colleagues in the management of individual patients. Readers may also find it useful in developing exercise programs that might be modeled after the excellent work done by the Shining Mountain Diabetes Program and the SunUte exercise program.

It is important to understand how to analyze the risks as well as the benefits of exercise in our individual patients. The evaluation prior to prescribing exercise requires a detailed history and physical examination, a review of the chart, and appropriate diagnostic studies, occasionally requiring the patient to be referred outside of the facility for more in-depth evaluation. The presence of conditions other than diabetes, or disabilities must also be evaluated as well and incorporated into an appropriate exercise prescription.

The initial medical evaluation requires a careful screening for micro- and macro-vascular complications that may be exacerbated by the prescribed exercise program. The history and physical examination should focus on symptoms or signs of complicating diseases, with close attention to the heart, eyes, kidneys, and nervous system. An exercise stress test may be helpful to assess the cardiovascular risk of those with multiple risk factors, as noted in the flow chart on page 225 ("Exercise Prescription for those with Diabetes").

Clearly, the greater the age, the longer the duration of diabetes, and the greater the number of risk factors, the higher the prevalence of coronary artery disease. In those diabetic individuals over 35 years of age, those who already have complications, as well as those with other risk factors in addition to diabetes, exercise stress testing should be considered before

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the initiation of a rigorous exercise program. However, in patients planning to exercise only at a low intensity (such as walking with a maximal heart rate of less than 60% of their maximal predicted heart rate), the provider should employ discretion, and clinical judgment should be used. On the other hand, it should be pointed out that the use of stress testing in this population may give us the opportunity to discover coronary artery disease before it becomes clinically manifest, regardless of the patient's intended exercise intensity. Obviously, patient preferences and testing availability may play an important role in these decisions.

In patients with known coronary artery disease or with a worrisome but stable history of chest pain, routine exercise stress testing (or, if there is an abnormal electrocardiogram, nuclear or echo stress testing) is indicated prior to exercise prescription, unless recently performed (within the last 3 to 6 months).

Specific evaluations include:

History

- known cardiovascular disease, including prior coronary artery disease or myocardial infraction, valvular or other heart disease, stroke, abdominal aortic aneurysm, peripheral vascular disease
- the presence of chest pain, including its character, association with exertion, duration, frequency, and pattern (stable or not)
- known history of diabetic complications (including retinopathy, nephropathy, neuropathy)
- symptoms of autonomic dysfunction (including orthostatic dizziness, gastrointestinal or genitourinary symptoms)
- arthritis/joint pains, difficulty or limitations with walking
- · dizzy spells, presyncope, or syncope
- the presence of intermittent claudication
- · recent change in vision

Physical examination

- · vital signs
- orthostasis (systolic BP fall by more than 20 mm-Hg after 2 minutes of standing when mov ing from a sitting to a standing position)
- · standard cardiovascular exam
- peripheral vascular exam, including pulses of the dorsalis pedis and posterior tibial arteries
- close examination for decreased or absent puls es, hair loss, and atrophy

Standard diabetic evaluations

 recent ECG (within one month) prior to exercise program prescription and at least every 2 years thereafter

- ophthalmologic evaluation for diabetic retinopathy (if not done within the past year) and at least annually
- foot examination for neuropathy, ulcers (with podiatry referral as indicated)
- renal evaluation for nephropathy (including microalbuminuria)

Following these evaluations, appropriate exercise prescriptions may be given utilizing the scheme in Figure 1. Specific exercise recommendations for those with diabetic complications are noted in Table 1 on page 226, and recommendations for exercise programs regarding blood sugar monitoring are noted in Table 2 also on page 226. Finally, on page 226 there is a sample that represents a reasonable medical referral form for your utilization.

The optimal exercise program for most individuals focuses on aerobic (high movement, low resistance) activity for a total of about 30 minutes daily on at least three to five days of the week. Once the exercise program has been prescribed, it is important to counsel the individual regarding the importance of a warm up period, prior to the actual exercise. This includes a 5 to 10 minute period of stretching and low level aerobic activity. A similar cool down period is also important to gradually bring the heart rate down to its pre-exercise level.

The importance of adequate footwear cannot be overemphasized. The use of silica gel or air insoles for cushioning, as well as cotton-polyester socks to prevent blisters and to keep the feet dry is extremely important to help prevent diabetic complications. Similarly, adequate hydration is important, encouraging adequate intake within the two hours prior to exercise to compensate for fluid losses during the activity. Avoidance of extremes of heat and cold are generally recommended.



Table 1. Medical recommendations for exercise programs for diabetics with micro/macrovascular complications

Nephropathy

 Patients with overt nephropathy (albumin excretion albumin excretion > 200 mg/24 hours) should be restricted to low-to-moderate intensity exercise programs.

Peripheral Neuropathy

- Patients deemed to have loss of protective sensation by 10g monofilament testing should adhere to the recommended, limited weight bearing exercises listed below only to limit risk of foot ulceration and fractures.
 - Recommended Exercises: swimming, bicy cling,rowing, chair exercises, arm exercises, her non-weight bearing exercises.
 - Contraindicated Exercises: treadmill, prolonged walking, jogging, step exercises.

Autonomic Neuropathy

- Cardiac autonomic neuropathy may be indicated by a resting tachycardia (HR>100), orthostatic changes (SBP drop > 20 mm Hg upon standing after 2 minutes, particularly with little associated change in pulse), or other disturbances in autonomic nervous system function involving skin, pupils, or gastroin testinal or genitourinary systems.
- Because cardiac autonomic neuropathy appears to be a marker for an increased risk of sudden cardiac death and silent ischemia, evaluation for ischemiashould be undertaken prior to initiating exercise program, optimally with a nuclear stress test.
- Following medical clearance, because of the risk of developing hypo/hypertension with exercise and disorders in thermoregulation common in these patients, exercise should be done in moderate temperature external environments. Patients should be advised to maintain adequate hydration.

Diabetic Retinopathy

- Patients with active proliferative diabetic retinopathy are at increased risk for vitreous hemorrhage/retinal detachment and should avoid anaerobic exercise and exercise that involves straining, jarring, or Valsalvalike maneuvers.
- An exercise prescription should be tailored to the individual patient according to degree of diabetic retinopathy (see attached).

References:

- Diabetes and Exercise ADA. Diabetes Care. Vol 25, Supplement 1, Jan 2002. p. S64-S68.
- ADA/ACSM Joint Position Statement, Vol 29, Num 12, December 1997
- 3. AHA/ACSM Joint Position Statement Vol 30, Num 6, June 1998

Table 2. Recommendations for exercise program blood sugar monitoring

- 1. Patients should be made aware of the symptoms of hypoglycemia before initiating an exercise program.
- 2. The patient's medication profile should be reviewed to see if they are receiving therapy with insulin or oral hypoglycemic medications.
- 3. Patients who are experiencing frequent (>2/month) hypoglycemic episodes in general or any hypoglycemic episodes during exercise should consult with their physician prior to continuing with their exercise/fitness program.
- 4. Patients should have blood sugar monitoring beforeand after exercise when starting a new program orwhen medications have changed (to evaluate the individual's glycemic response to exercise.)
- 5. Carbohydrate should be ingested by patients whose blood sugar is below 100 mg/dl before exercise or if hypoglycemia develops during/after exercise.
- 6. Patients should avoid exercise if blood sugar is >300 dl (which should prompt a medical referral for evaluation/management).
- 7. Patients (particularly those on insulin or oral hypoglycemic therapy) should be discouraged from fasting prior to exercise.
- 8. Staff supervising diabetic exercise programs should be trained/equipped to provide basic management of hypoglycemia (oral carbohydrates, glucagon).

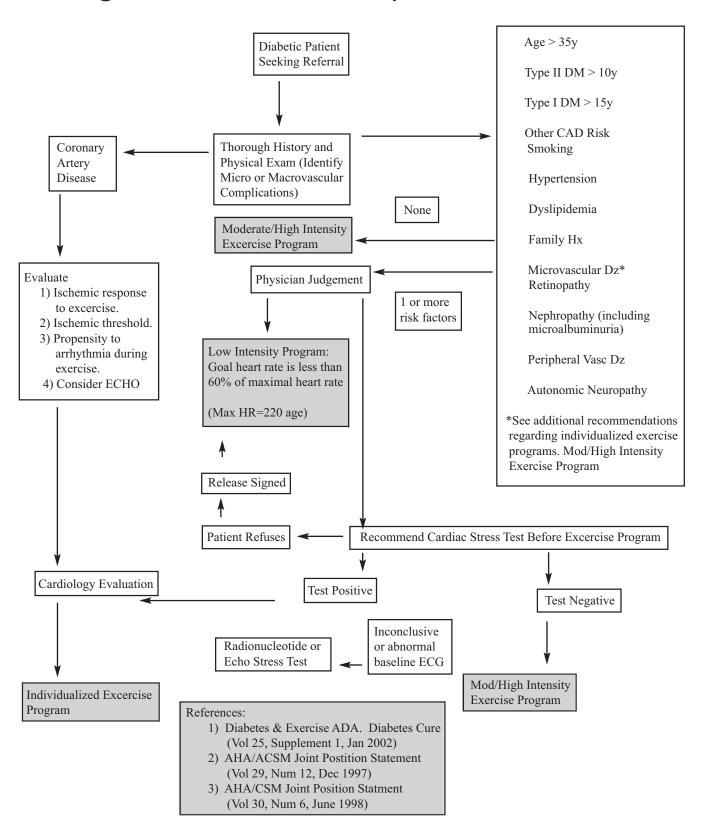
Conclusion

The potential benefits of increased physical activity for all individuals, including those with diabetes mellitus, are well recognized. The role of the provider in advocating physical activity (in conjunction with weight control, tobacco cessation, and blood pressure and lipid control) is essential for the prevention and control of diabetes and cardiovascular disease. The provider holds a unique and important responsibility in motivating our patients in these regards. The professionals who foster this motivation through wellness programs and interventions are vital to the continuing success of the individuals we serve.

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Excercise Prescription for those with Diabetes Algorithm For Coronary Risk Evaluation



Exercise Program Medical Referral

Patient Name:		DOB:	MR#			
Contact Phone #(s):		Referral Date:	Census#			
Section I	: Medical Clearance					
	This patient has been evaluated and hexercise program without restriction.	nas been found to be at relatively low risk	s, and may participate in an			
	This patient has increased risk for exercise-related medical problems and has been informed of the potential risks. He or she requires an <u>individualized exercise program</u> with certain restrictions.					
	This patient has increased risk for exercise-related medical problems and has been informed of the potential risks. He or she has refused the recommended medical evaluation and therefore is <u>not eligible</u> to participate in the Exercise Program at this time.					
Section I	I: Supervised Exercise Program Inten	sity (Maximum Recommended)				
	Low Intensity Program					
	Moderate Intensity Program					
	High Intensity Program					
Section	III: Diabetic Complications Ne	cessitating Restrictions				
	Peripheral Neuropathy					
	Autonomic Neuropathy					
	Retinopathy					
	Nephropathy					
Section	IV: Pertinent Medications					
	Oral Hypoglycemic Agents					
	Insulin					
	Other:					
Section	V: Other Recommendations/Re	<u>estrictions</u>				
	Cardiac Stress Test					
	Nuclear/Echo Stress Test					
	Other:					
Physician	Signature:		Date:			

Chronic Kidney Disease: Screening and Staging

This is the third in the series of articles about chronic kidney disease.

Andrew S. Narva, MD; and Theresa A. Kuracina, MS, RD, CDE, both from the Indian Health Service Kidney Disease Program. Albuquerque, New Mexico

All American Indian patients should be assessed as part of routine care to determine their risk for chronic kidney disease (CKD). Patients with a family history of CKD and those of older age have increased susceptibility for developing CKD. Diabetes and high blood pressure are also potential risk factors. Autoimmune diseases, systemic infections, urinary tract infections, urinary stones, lower urinary tract obstruction, low birth weight, and drug toxicity are other initiating factors.

Screening includes an assessment of glomerular filtration rate (GFR) and measurement of urinary protein excretion. Neither requires a 24-hour urine collection. GFR can be estimated from the creatinine using the Cockcroft-Gault formula as described in the previous article in this series (and repeated below). Protein excretion can be estimated from a spot urine specimen. The ratio of albumin or total protein to creatinine is roughly equivalent to the 24-hour protein excretion in grams. Albumin is the predominant protein in adults with glomerular disease, and an albumin-to-creatinine ratio is preferred. Children may be somewhat more likely to have interstitial disease, and the total protein-to-creatinine ratio is recommended. However, either test may be used. The important concept is to quantify the proteinuria.

Estimation of GFR and testing for other markers of kidney disease are the recommended standard of care. Formulae to estimate GFR are as follows:

Adults	(140 - age) (body wt in kg) (For women: multiply x 0.85) 72 x serum creatinine
Children	0.55 x (length in cm) serum creatinine

The following are some general points about measuring protein in the urine:

- No need to collect 24-hour urine samples
- Use untimed "spot" urines to detect and monitor proteinuria

- First morning voids are preferable; however random samples are acceptable
- Standard urine dipsticks are acceptable to screen for proteinuria
- Albumin-specific dipsticks are acceptable to screen for albuminuria
- A 1+ or greater result should have quantitative measurement within three months
- protein-to-creatinine ratio OR albumin-to-creatinine ratio useful
- Two or more positive quantitative tests spaced within
 1 2 weeks confirms proteinuria

Specific Guidelines for Proteinuria in Adults and Children are as follows:

Adult		Children w/o Diabetes	Children w/ Diabetes	
Screening: Use spot urine	Albumin-specific dipstick Albumin-to-creatine ratio	First morning void pref- rred to rule out orthostatic proteinuria Standard urine dipstick Total protein-to- creatinine ratio	For post-pubertal children with diabetes for 5 or more years, follow adult screening and monitoring guidelines	
Monitoring: Use spot urine	Albumin-to-creatinine ratio If albumin-to-creatinine ratio is high (>500 - 1000 mg/g), can use total protein-to creatinine ratio	Total protein-to- creatinine ratio	For younger children and those with DM < 5 years, follow scre- ening and monitoring guidelines for children without diabetes	

Other Markers of Chronic Kidney Disease

Abnormalities in urine sediment or abnormal imaging studies are other markers of CKD. The clinician can further determine the type of kidney disease by assessing these other markers

Urine Sediment Examination

- "Fresh" first morning void is preferred when assessing urine sediment
- Examine for casts, as casts are formed only in the kid ney. These casts entrap materials in the lumen at the time of cast formation
- In hematuria, the presence of red blood cell castsstrongly suggests glomerulonephritis

- Leukocyte casts along with hematuria may indicate glomerulonephritis
- Urinary eosinophils are associated with allergic tubulointerstitial nephritis

Imaging Studies

Ultrasound is available in many Indian health facilities and is usually the initial imaging procedure of choice. Use caution when using iodinated contrast; this may cause acute kidney damage, especially in the presence of decreased kidney function.

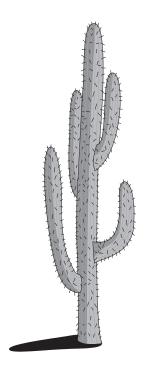
Staging Chronic Kidney Disease

The diagnosis and type of kidney disease, comorbid conditions, severity (as assessed by GFR), complications, risk for loss of kidney function, and presence of cardiovascular disease should be evaluated for all patients with CKD. Diabetic kidney disease will progress faster with higher levels of proteinuria and higher blood pressure, poor glycemic control, and smoking.

The treatment plan is based on a staged approach, as follows:

Stage	Description	GFR	Metabolic Consequences
		(mL/min/1.73 m ²)	
1	Kidney damage w/ normal or ↑ GFR	≥ 90	Diagnose/treat, treat comorbid conditions, slow progression, CVD risk reduction
2	Kidney damage with mild ↓ GFR	60 - 89	Estimate progression
3	Moderate ↓GFR	30 - 59	Evaluate and treat complications: assess for anemia, check iPTH, Ca, P; refer to dietitian; conduct functional assessment
4	Severe ↓GFR	15 - 29	Prepare for kidney replacement therapy: refer to specialist; consider low protein diet
5	Kidney failure	< 15 (or dialysis)	Kidney replacement therapy, if uremic

A detailed approach to management of these problems (e.g., anemia, bone disease, malnutrition) will be discussed in upcoming articles.



WebCident: Streamlined Incident Reporting for the Indian Health Service

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An important new tool for saving time and money is on the horizon, and it's called WebCident. To be implemented in January 2003 in all Indian Health Service (IHS) facilities, WebCident is a computer program designed to save time and money when it comes to documenting and tracking incidents. The term "incident" refers to workplace injuries and illnesses, blood borne pathogen exposures, and other events involving safety and security. WebCident helps safety officers and facility directors better understand where injuries and illnesses are occurring, and why. A database management tool designed by IHS Environmental Health Officers, WebCident allows IHS workers and supervisors to document incidents and automatically create reports right from their own workstation.

Why is such a tool important? Primarily, because Federal law requires that incidents are reported and recorded, and this is exactly what WebCident does. When President Richard M. Nixon signed the Occupational Safety and Health Act in 1970, he created the most important piece of worker safety legislation ever enacted. Among its many directives, this law mandated the recording and reporting of worker injuries by employers. The Federal requirement stipulates that information is collected and analyzed to determine how to prevent injuries, illnesses, and deaths in the workplace.

Currently, the IHS fulfills these requirements by using the Incident Report form (IHS-516), with which many may be familiar. IHS-516 is the form we fill out when we get injured on the job, or something is stolen from our office, or we get a needle stick. It usually takes valuable time out of our day to locate the form, fill it out, and send it over to the safety officer, where we often lose track of it. With WebCident, much of that inefficient use of time and energy will come to an end.

Consider the scenario in Figure 1. We can see that the nurse and the safety officer have had to take significant time away from their regular duties to document the needle stick injury. The information, however, never became part of a database where trends and causes of needle stick injuries could

be analyzed. The scenario demonstrates that the "old" system does not capture the essential details of an incident and add them to a data set for future analysis. The inability of the current, paper-based system to make the most of the latest technology has clearly made it obsolete and inefficient.

Figure 1. Needle stick scenario

You are a nurse who is nearing the end of a very hectic 12hour shift when suddenly you are stuck with a contaminated needle. According to IHS policy, you must report this incident to your supervisor and the safety officer. Since you will be taking a weekend trip to your favorite beach leaving on the first flight out in the morning, you begin working on the form right away. About an hour and a half later, you have managed to locate and complete the form, and send it to the safety officer. The next day, when the safety officer reviews the form, she sees that this incident was a blood borne pathogen exposure requiring additional information not included on the completed form. She sends you another form for entering information specific to needle sticks, such as the type and brand of syringe involved, but you don't receive the form until your return from the beach on Monday. By then you remember very little detail of what happened before you left, and only vaguely remember the needle stick injury at all.

Because of incomplete reporting and potential for mistakes when filling out the current form, the number and types of injuries occurring in and around IHS facilities cannot be easily determined. One actual event provides a powerful illustration of this point. Each year the IHS sends an annual report to the Department of Health and Human Services that describes all work-related injuries and illnesses that have occurred throughout the Agency. In one notable instance, however, the work-related death of an IHS worker was left out of the report because the system failed to relay information about the fatal incident through the proper channels. The incident was not discovered until after the report had been submitted. A system that fails to report the most serious category of incident undoubtedly needs to be revised or replaced with a better one.

Other problems plague the existing IHS incident reporting system. It is not designed to collect OSHA-required blood borne pathogen information or information on ergonomic related injuries. The earlier needle stick scenario provides an example of this, where three separate reports were filled out by hand: the incident report summary, the blood borne pathogen incident summary, and the sharps injury log. Further, the cur-

rent system does not have WebCident's built-in electronic data system that makes it easy to evaluate and analyze the details surrounding reportable incidents. As a result, thousands of hours are spent every year completing forms that do not add to a data set used for devising injury prevention strategies.

WebCident eliminates the weaknesses of the current incident reporting system. It combines all IHS incidents into a comprehensive and confidential data set, and is accessible through the IHS Intranet by anyone who may need to document an incident, namely, all employees and supervisors. The information goes directly into the central database, which is maintained at IHS headquarters. Safety officers can then retrieve all the details for incidents at their facilities, enabling them to determine which incidents occur the most frequently, and why. Therefore, WebCident's most valuable feature is its use as a tool to assist in preventing illnesses, injuries, and deaths within the IHS.

WebCident's value is further enhanced by recent emphasis on patient safety by the Joint Commission on Accreditation of HealthCare Organizations (JCAHO), which now requires documentation and analysis of patient injuries. Awareness of patient safety increased after a report was released in 2001 by the Institute of Medicine (IOM) revealing that an alarming percentage of patients experience adverse events while in the hospital. Following the tenet of the Hippocratic oath, "Above all, do no harm," the concept of patient safety seeks to identify and eliminate hazardous circumstances before a patient is injured. Analyzing circumstances of an injury to determine its cause is called "root cause analysis," now required by JCAHO. WebCident is a database management tool that collects information on patient injuries so that, along with fulfilling reporting requirements, permits the performance of root cause analyses, as well.

WebCident is simple to use, and was designed with the "computer-challenged" in mind. Among its many features are the following:

- Reports are automatically generated, including the summarized incident report, OSHA 300 log, OSH-A 300 summary, sharps injury log, patient and visitor injury summaries, annual summaries of lost work time events, and several others.
- Every form is user friendly, with pull-down menus and a "check selection" format (see Figure 2).
- For people who do not have access to a computer, the reporting form can be printed and filled out manually.
- WebCident follows "logic pathways," meaning that only those issues relevant to your incident are completed. You won't be wading through unnecessary sections while completing an incident report.
- Computer program installation is not necessary. WebbCident is a computer application that is available to all computers on the IHS intranet, so typing in the web address is all that is required for access.

- User names and passwords are not required for accessing WebCident. Once the WebCident home page appears, you are ready to begin entering information.
 Safety officers, however, will have access to a pass word-protected area, where they can access all the reports from their facilities.
- WebCident works with most Internet browsers, including older ones, and works great with slow connections.
- It takes about 15 minutes to complete a typical incident report using WebCident.

The target date for having all IHS facilities switch to WebCident is January 1, 2003. Currently, a team has been assembled to find the best way to introduce WebCident into all IHS facilities. The team will appeal to nurses, physicians, administrators, safety officers, and other employees for their support in the transition from the outdated system to the state-of-the-art WebCident system. We expect such a transition to be simple and straightforward.

Figure 2. Sample page from WebCident



Consider the needle stick scenario once again, but instead of using the old incident reporting form, your facility is using WebCident. You sit down at your workstation, type in the web address of WebCident, and begin filling in the details of the needle stick injury. Guided step-by-step by the userfriendly program, you complete the incident report in less than fifteen minutes. You print one copy of the incident summary for your records and one for your supervisor. Then it's off to the beach! The safety officer receives an automatic email notice of the incident and immediately reviews it. He or she then prints a copy of the report summary, along with copies of the blood borne pathogen incident summary and sharps injury log for his or her own records. You spend little time completing the form, information is accurate, and the safety officer is provided with key information needed for preventing needle stick injuries in the future.

For additional information, or to make suggestions, please contact Gary Carter at (301) 443-1054, or via e-mail at gcarter@hqe.ihs.gov.

Electronic Signature of Lab Results – Fantasy or Reality?

It is Monday morning, 8 am at the Chinle Comprehensive Health Care Facility. Dr. Maddie Record arrives, pours herself a cup of coffee, turns on her computer, and signs onto the RPMS. The first thing she sees is this message:

Good morning Record, Maddie You last signed on Aug 22, 2002 at 08:51 You have 1 new messages [39 in the 'IN' basket]

You have 8 Lab Results to Review with 2 CRITICAL and 6 ABNORMAL

Before seeing her patients, she decides to review the critical lab results. She chooses the option to review new labs, and after careful consideration she signs the results using her electronic signature code. At the end of the day, Dr. Record returns to her computer to finish reviewing her lab results. She now has ten new labs to review. After reviewing the first lab she forwards it to one of her colleagues for a second opinion. The second lab result belongs to a patient who was admitted and treated by another physician, so she decides to reassign it to the attending physician. The remaining eight labs she reviews and signs with her electronic signature code. Since she is going on vacation for a week, she assigns her colleague, Dr. Adam, as her surrogate for the week so that he can review and sign her labs while she is gone. She finishes her coffee, puts on her coat, turns out the lights, and leaves knowing that all her lab results will be reviewed while she is gone. Fantasy or reality?

Reality. The providers at the Chinle Comprehensive Health Care Facility have been using the Lab Electronic Signature enhancement, developed by the Information Technology Support Center (ITSC) and Mitretek, Inc. since January 2002. The Lab Electronic Signature enhancement was designed to help providers review and sign off on lab results with more ease. Some benefits providers will gain from the use of this application include:

- Immediate notification that labs are ready for review.
- Alerts indicate the number and type (Critical, Abnormmal, Normal) of processed labs returned.
- Increased accessibility to review and electronically sign off on lab results from any RPMS terminal.
- Electronically forward lab results to another physician via RPMS MailMan.
- · Electronically reassign lab results to another physician.
- Electronic designation of surrogate physicians to review and sign off on lab results on your behalf.

- No waiting around for lab results to return from the lab.
- · Reduced risk of lost or missing lab results.
- Reduced paper use.

Participating providers will have the following new capabilities:

- Receive alert messages of lab results to review when signing into RPMS.
- Review lab results (either complete or pending) through the new menu option.
- · Electronically sign off on reviewed lab results.
- Review any lab results from another participating physician who has named you a surrogate.
- Forward lab results to other participating physicians for additional review.
- Run a Signed Lab Results report for lab result tracking.

In addition to the electronic signature capability, a new audit report is available. This report, which can be turned on or off, will track RPMS users who are reviewing lab results. The electronic signature software is now available to all I/T/U sites that are currently using the RPMS Laboratory Package and, like all software developed by the IHS, is free of charge. If a site is interested in using the software, they can contact their site manager or Area Office for installation. Once installed, site managers will assign new security keys and menus to participating providers and assist these providers with assigning themselves an electronic signature using "toolbox" in the RPMS. Security for the software is the same as for other RPMS applications in that the users have unique access and verify codes to sign onto the RPMS and a unique electronic signature code to "sign" the lab results.

Training classes sponsored by ITSC will be available at the Area Offices and at the National Programs training facility in Albuquerque, New Mexico. For information about the application or to obtain the training schedule, please contact Catherine Moore at (505) 248-4430.

New Injury Prevention Program Development Fellowship Announced

The IHS Injury Prevention Program is recruiting applicants for the inaugural class of the new Program Development track of the IHS Injury Prevention Specialist Fellowship. This new training opportunity is the latest addition to the IHS Injury Prevention Specialist Fellowship, which is a nationally recognized program that has offered the best advanced injury prevention training available since 1988. The traditionally offered Fellowship emphasizes the application of epidemiologic research to injury prevention. This new track of the Fellowship was developed to offer the same high quality training with an emphasis on community-based injury prevention program development.

The Program Development Fellowship is a yearlong program open to any individuals interested in addressing the problem of injuries in their community. Ideal applicants include directors of tribal injury programs, tribal health authority and health care staff, CHRs, firefighters, police, health educators, community coalition members, environmental health specialists, previous epidemiology-based Fellowship graduates, and anyone interested in reducing the burden of injury at the community level.

The Program Development Fellowship offers:

- Skills development in program planning, organizing local injury data, coalition building, marketing, advocacy, grant writing, and program evaluation.
- Up-to-date information on the most effective injury prevention programs.
- Ideas and skills for finding new sources of funding for your community injury prevention program.
- Greater community involvement in injury prevention activities.
- Improved effectiveness and satisfaction in your injury prevention work.
- Success stories in the prevention of injuries from motor vehicle crashes, violence, falls, and fires.
- Individualized learning experiences that you choose.
- Completion of a project that will help reduce injury in your community.
- Faculty and local mentors to assist you throughout the year.

During the Fellowship year, participants attend four oneweek long courses, conduct a community-based project designed by the Fellow, and report the results of their project at a national forum. Courses will be presented through a combination of classroom, workgroup, field work, and individual assignments by nationally known injury prevention academic and community programs and IHS staff. The Fellow will be assisted by a mentor, Fellowship academic staff, and local IHS injury prevention staff.

IHS will provide funding for costs associated with travel, per diem, and tuition for participation in the Program Development Fellowship in most cases. IHS cannot provide funding for participations from fully compacted tribes.

The Program Development Fellowship is open to persons who have:

- Worked at least 12 months in injury prevention.
- Attended the IHS "Introduction to Injury Prevention" course or equivalent.
- Demonstrated a commitment to community injury prevention.
- · Have access to the Intranet and e-mail.

Additional information on the Program Development Fellowship and an application packet are available at www.dehs.ihs.gov/noinjuries or from:

Bobby Villines
IHS Environmental Health Support Center
5300 Homestead Road NE
Albuquerque, NM 87110
Telephone (505) 248-4603
E-mail bvillines@abq.ihs.gov

Application deadline: December 2, 2002.



PALLIATIVE CARE PEARLS \square

Syndrome of Imminent Death

The following article is the third in an ongoing series in support of the development of a unified approach to palliative care services for American Indians and Alaska Natives. Each will present brief, concise facts and information for providers of palliative care.

Judith A. Kitzes, MD, MPH, Soros Foundation, Project on Death In America Faculty Scholar, University of New Mexico Health Science Center, School of Medicine, Albuquerque, New Mexico

- \Box It is difficult to predict the time of death.
- □ Do not stop pain medications, especially opioids.
- □ Dying is an inherently lonely state.

As death approaches, it is important to recognize the final stages into which it may be divided; these stages may evolve over anywhere from the last 24 hours to 10-14 days. These stages and the signs that characterize them are as follows:

Early	Mid	Late
Bed bound	Obtunded	Coma
Not eating/drinking	Death rattl	Cool extremities
Cognitive changes	Fever	Altered respirations

The management of the syndrome of imminent death is guided by the following principles:

- 1. Once it is recognized, discuss the situation with the family.
- 2. Note in chart, "Patient is dying."
- 3. Discuss with the family stopping all treatments not contributing to comfort care, such as hydration, antibiotics, pulse oximetry, vital signs, laboratory studies, ventilator, dialysis, etc.
- 4. If available, honor advanced directives.
- 5. Treat "death rattle" with scopolamine patch (1-2 patches), or parenteral glycopyrrolate (0.2-0.4 mg starting dose).
- 6. Use morphine to control pain, dyspnea, or tachypnea, and maintain other palliative medications, preferably via subcutaneous or transdermal access. Do not assume person is not in pain if they are obtunded or in coma. Opioids can be decreased, if there is concern about a respiratory rate less than 8-10/min. Rapid cessation of opioids can produce a withdrawal syndrome.

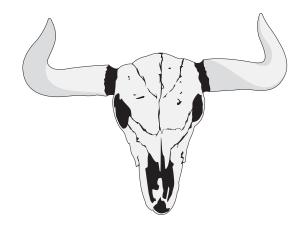
- 7. Provide excellent mouth and skin care.
- 8. Treat dying person with respect, always talking to them and touching them gently. The last sensory modality to go is hearing.
- 9. Maintain open, frequent communication with family.
- 10. Honor cultural and spiritual traditions regarding the death vigil, prayer, handling of body after death, and other matters.
- 11. Practice "powerlessness" and the beauty of "being without doing."

References

- 1. www.palliativedrugs.com
- Dickerson E, Benedetti C, Davis M, Grauer P, SantaEmma P, Zafirides P, Varga J. Palliative Care Pocket Consultant. 2nd Ed. Kendall/Hunt Publishing Company 2002.
- 3. Weissman, D. Fast Fact and Concept #03. www.eperc.mcw.edu.

Disclaimer concerning medical information

Health care providers should exercise their own independent clinical judgment. Accordingly, the official prescribing information should be consulted before using any product mentioned here.



MEETINGS OF INTEREST □

IHS Integrated Diabetes Education and Clinical Standards Recognition Program Workshop December 10, 2002; Denver, Colorado March 18, 2003; Albuquerque, New Mexico

The IHS Integrated Diabetes Education and Clinical Standards Recognition Program enables your program to seek acknowledgment of quality diabetes care and education services offered in your community. The IHS Recognition Program offers flexibility in measuring your program against nationally accepted diabetes education and clinical standards. IHS Diabetes Education Recognition will allow diabetes education programs to seek Medicare reimbursement. This workshop is designed for health professionals, diabetes team members or diabetes educators working in the Indian health network.

The March meeting will be held at the Marriott Hotel. The December workshop is being presented in conjunction with the Diabetes In American Indian Communities Conference in Denver, December 10-13, 2002; it will be held at the Adams Mark Hotel.

There is no registration fee for these workshops. The IHS Clinical Support Center is the accredited sponsor. For more information or to request a pamphlet, contact the IHS Nutrition and Dietetics Training Program at (866) 477-6432; e-mail <code>deckleberry@abq.ihs.gov;</code> or log on to our web site at <code>www.ihs.gov/medicalprograms/nutrition</code>.

Diabetes in Pregnancy: Nutritional Management of Gestational Diabetes Mellitus and Type 2 Diabetes January 14-16, 2003; Phoenix, Arizona

Are you challenged to try new meal planning approaches and nutrition education materials customized to meet the needs of your clients with diabetes during pregnancy? Do you want to learn the "state of the art" management of diabetes in pregnancy from clinicians and certified diabetes educators working in NA/AN communities? Are you curious about how to provide intensive diabetes management and teach carbohydrate counting and blood glucose pattern management to your prenatal clients with diabetes? If so, this workshop is for you! This workshop is designed for nutritionists and nurses who provide direct prenatal care to American Indian/Alaska Native clients.

A registration fee will apply for those registrants employed by compacting/contracting tribes who have withdrawn tribal shares from the IHS Nutrition and Dietetics Training Program.

The IHS Clinical Support Center is the accredited sponsor of this workshop. For more information or to request a pamphlet, contact the IHS Nutrition and Dietetics Training Program at (866) 477-6432; e-mail

deckleberry@abq.ihs.gov; or log on to our web site at www.ihs.gov/medicalprograms/nutrition.

Establishing Metabolic Syndrome Programs in American Indian/Alaska Native Communities January 22-23, 2003; Oklahoma City, Oklahoma February 18-19, 2003; San Diego, California April 15-16, 2003; Phoenix, Arizona June 3-4, 2003; Minneapolis, Minnesota

This two-day diabetes and cardiovascular disease prevention workshop will address the justification and essential program components necessary for implementing metabolic syndrome programs in American Indian and Alaska Native communities.

Teams of 2-3 healthcare professionals (MD, PA, RPh, RD, RN, etc.) who have interest and plan to develop a metabolic syndrome program or improve an existing diabetes program should apply. Such teams will be given priority over individuals.

The IHS Clinical Support Center is the accredited sponsor of this workshop. For more information or to request a pamphlet, contact the IHS Nutrition and Dietetics Training Program at (866) 477-6432; e-mail deckleberry@abq.ihs.gov; or log on to our web site at www.ihs.gov/medicalprograms/nutrition.

The 2003 Meeting of the National Councils of the IHS February 10-13, 2003; San Diego, California

The National Councils (Clinical Directors, Service Unit Directors, Chief Medical Officers, and Nurse Consultants) of the Indian Health Service will hold their 2003 annual meeting February 10-13, 2003 in San Diego, California. An exciting and informative program is planned to address Indian Health Service/tribal/urban program issues and offer solutions to common concerns throughout Indian country. The focus this year will be on "Achieving Quality Care through Quality Indian Health Program Chief Executive Leadership." Officers and Clinico-administrators are invited to attend. The meeting site is the Bahia Resort Hotel, 998 W. Mission Beach Drive, San Diego, California. The Clinical Support Center (CSC) is the accredited sponsor for this meeting. Please contact Gigi Holmes at the Clinical Support Center (602) 364-7777, or e-mail gigi.holmes@phx.ihs.gov.

Nutrition and Chronic Kidney Disease March 5 - 6, 2003; Albuquerque, New Mexico

The IHS Nutrition and Dietetics Training Program (N&DTP) and the IHS Kidney Disease Program will sponsor a two-day workshop on nutrition and chronic kidney disease in Albuquerque. The objectives of this workshop are to

review the new National Kidney Foundation classification of the stages of chronic kidney disease (CKD) and the progressive nature of CKD; to identify patients who may benefit from nutritional intervention to preserve kidney function; to prescribe, monitor, and evaluate appropriate medical nutrition therapy; and to identify different treatment modalities and their respective nutritional considerations.

Dietitians, nutritionists, and other health professionals who provide services to American Indian and Alaska Native patients with varying degrees of kidney disease are encouraged to apply. The IHS N&DTP has no registration fee for those representing programs that have not taken their shares of the IHS N&DTP budget. For additional information, please call IHS N&DTP toll free at (866) 477-6432.

IHS National Nutrition and Dietetics Seminar April 29-May 2, 2003; Albuquerque, New Mexico

This seminar is designed for Indian Health Service, tribal, urban program, BIA, and WIC Program dietitians and nutritionists serving American Indians/Alaska Natives. The conference goals are as follows: to increase knowledge, confidence and skills in providing consistent messages that address customer needs; to provide updates on IHS initiatives and programs; to provide opportunities for nutrition professionals working in American Indian/Alaska Native communities to network and share experiences.

Workshop offerings include the following: New Staff Orientation; IHS Headquarters Updates and Initiatives; Medical Nutrition Therapy: Using the Standards; Reimbursement for Nutrition Services; Cultural Counseling; Prevention Marketing; Applying Exercise Science for your Patients; Diabetes Prevention Program: Successful Tips for Use with Your Clients; Culinary Arts for Dietitians and Nutritionists; and How to Conduct and Analyze Focus Groups.

A registration fee will apply for those registrants employed by compacting/contracting tribes who have withdrawn tribal shares from the IHS Nutrition and Dietetics Training Program. The conference will be held at the Marriott Hotel.

The IHS Clinical Support Center is the accredited sponsor of this workshop. For more information or to request a pamphlet, contact the IHS Nutrition and Dietetics Training Program at (866) 477-6432; e-mail deckleberry@abq.ihs.gov; or log on to our web site at www.ihs.gov/medicalprograms/nutrition.

Applied Exercise Science for Clinical Professionals: A short course and practicum in Exercise Science and Exercise Planning

May 20-21, 2003; Santa Fe, New Mexico

This workshop is designed for health care professionals (MD, PA, RPh, RD, RN, etc.) who have interest in and plan to provide assistance to patients with exercise for both primary and secondary prevention.

Participants will learn about the following: sufficient exer-

cise science fundamentals necessary for decision making on advising patients to exercise, specifically regarding exercise mode, duration, intensity and progression of energy expenditure in both primary and secondary prevention; relevant clinical energy expenditure in both primary and secondary prevention; practical exercise through program case studies, including several novel forms of exercise; current consensus guidelines (ACSM, 2000; NHLBI 1998; ACE CES; ADA 2002); essential exercise physiology framework for acute and chronic exercise response; relevant exercise clinical trial outcomes published over the last two years and their practical application; essentials for exercise programming in primary and secondary prevention; practical methods of estimating exercise energy expenditure; essential considerations when advising exercise; criteria for selecting appropriate forms of physical activity; exercise compliance strategies; and anthropometric measures of body composition (body fat analysis).

A registration fee will apply for those registrants employed by compacting/contracting tribes who have withdrawn tribal shares from the IHS Nutrition and Dietetics Training Program.

The IHS Clinical Support Center is the accredited sponsor of this workshop. For more information or to request a pamphlet, contact the IHS Nutrition and Dietetics Training Program at (866) 477-6432; e-mail deckleberry@abq.ihs.gov; or log on to our web site at www.ihs.gov/medicalprograms/nutrition.



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 on an organizational letterhead to: Editor, The IHS Provider, The IHS Clinical Support Center, Two Renaissance Square, Suite 780, 40 North Central Avenue, Phoenix, Arizona 85004. Submissions will be run for two months, 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. The Indian Health Service assumes no responsibility for the accuracy of the information in such announcements.

Staff Physicians, Multiple Specialties Phoenix Area Indian Health Service

Challenging professional opportunity in a setting of rewarding, cross-cultural health care. Seeking BC/BE family practice, obstetrics and gynecology, internal medicine, general surgery, and emergency medicine physicians. Position available in urban and rural settings. Our physicians are eligible to apply for the IHS Loan Repayment Program. Please send resume and/or inquiries to Kim R. Smith by fax at (602) 364-5358; or e-mail kim.smith@mail.ihs.gov. Equal Opportunity Employer.

Chief of Medicine and General Internists Phoenix Indian Medical Center; Phoenix, Arizona

Challenging professional opportunity in a rewarding cross-cultural health care setting. Recruiting a Chief of Medicine: Board Certified, five years of experience, prefer several years of IHS experience. Also recruiting for a full time general internist and a second general internist position in summer 2003. The practice utilizes a hospitalist internal medicine model and includes a busy primary care medicine clinic. The internal medicine department has a staff of eleven internists, including endocrinology, pulmonology, and other sub specialists. Please contact Eric M. Ossowski, MD, Acting Chief, Internal Medicine Department, Phoenix Indian Medical Center, 4212 N. 16th Street, Phoenix, Arizona 85016-5319; fax (602) 263-1593; telephone (602) 263-1537; or e-mail *eric.ossows-ki@pimc.ihs.gov*. Equal Opportunity Employer.

Pharmacist

Salt River Pima-Maricopa Indian Community; Scottsdale, Arizona

Position description: Will perform all pharmacy operations, including filling authorized prescriptions and providing education and counseling for patients of the Salt River Clinic. Duties will include the following: Prepares medications for patients from original prescriptions. Prepares and maintains prepackaged drugs. Under standing orders, determines need for medication refills on patients with chronic illnesses. Reviews all

drug orders written in the patient's permanent medical record to assure the appropriateness of the prescribed therapy. Resolves all discrepancies with the prescribing provider prior to dispensing medication. Maintains strict records of medications dispensed. Provides education and counseling to patients which includes, but is not limited to, the proper use of medications, possible side effects, correct storage of medications, dosage schedule, and identification of potential barriers to compliance. Maintains inventory and tight controls of all pharmaceuticals in the pharmacy, particularly the controlled drugs such as narcotics and sedatives. Orders drugs as appropriate. Ensures proper and safe storage and care of all pharmaceuticals. Confers with the pharmacy staff at Phoenix Indian Medical Center and the Phoenix Area Office of the Indian Health Service. Coordinates with all SRPMIC pharmacy staff to ensure coverage for the Salt River Clinic Pharmacy. Maintains pharmacy data and prepares reports as required. Maintains JCAHO (Joint Commission for the Accreditation of Health Care Organizations) standards, professional licensure, and continuing education credits required for field. Performs other duties as assigned to maintain and enhance program and agency operation.

Requires a BS in Pharmacy and at least two years of experience as a full-time pharmacist. Must be licensed in the state of Arizona. Clinic experience preferred. Familiarity with the Indian Health Service system and formulary desired. Ability to meet SRPMIC insurance requirements required. All applicants will be considered, and the tribe will consider entering into an MOA with a 0-3/0-4 level CO Pharmacist. Must pass a preemployment drug test. Native American Preference Applies. Equal Opportunity Employer. Contact the SRP-MIC Human Resources Department, 10005 East Osborn Road, Scottsdale, Arizona 85256; telephone (480) 850-8096; Internet address www.srpmicjob.com.

Orthopaedic Surgeon Tuba City Indian Medical Center, Tuba City, Arizona

We are looking for qualified and enthusiastic board eligible orthopaedic surgeons interested in working and living in northern Arizona. This position can be created to fit your timetable and lifestyle: Commissioned Corps officer, full-time/part-time employment, office non- surgical practice, contract employment, or locum tenens. Tuba City Indian Medical Center is a 72 bed acute care Level II trauma center located in northern Arizona at 5000 feet above sea level on the arid Kaibeto Plateau. There are a myriad activities available including bicycling, canyoning, rafting, rock climbing, and snow skiing among the numerous canyons and peaks. To name a few nearby attractions are the Grand Canyon, Bryce and Zion Canyons, the Colorado River and the San Francisco Mountains. You can work with an excellent medical staff, your children can play in safe neighborhoods, and your family will enjoy the great com-

munity spirit. Competitive salary with benefits, include moving allowance and loan repayment options, are offered. Interested? Direct your questions about this unusual and very rewarding job opportunity to Vivian K. Chang at (928) 283 2406, or send your CV to PO Box 600, Tuba City, Arizona 86045; or e-mail *vchang@tcimc.ihs.gov*.

Anesthesia Provider

Northern Navajo Medical Center; Shiprock, New Mexico

We are looking for a certified anesthesiologist or CRNA for full employment at NNMC, Shiprock, New Mexico. We are a 75 bed facility, do no open heart or neurosurgery, generally onlyl "bread and butter" cases. We are staffed for five positions - currently filled by two anesthesiologists and two CRNAs. We do about 2400 cases per year. The work schedule and call are very tolerable. We are geographically located in NW New Mexico, neighboring Farmington, NM. (pop 40,000). We are at the doorsteps of a great four-season playground in southwestern Colorado (ski, bike, go four-wheeling, fish, golf, study Indian culture, enjoy fresh air). The cost of living is excellent. Why be a slave to your current work schedule? Get out of the box "they" have you locked in. Start your new life here and make a living at the same time. This full time position could be filled by a Commissioned Officer, Civil Servant, or an individual contractor. You may also submit a bid for the job offered in the Commerce Business Daily publication, or access the net a www.cbd-net.com. For more information, call Paul D. Johenk, DO, Acting Chair, Department of Anesthesia, Northern Navajo Medical Center at telephone (505) 368-6454; e-mail zia1844@yahoo.com; or fax (505)368-6260.

Registered Nurses

Northern Navajo Medical Center, Shiprock Service Unit; Shiprock, New Mexico

We are recruiting clinical nurses for medical/surgical, emergency department, operating room, ambulatory care, and pediatrics for Northern Navajo Medical Center, Shiprock Service Unit in Shiprock, New Mexico. We are located in the unique Four-Corners region; this area is a great place to live and work! There are numerous Native American cultural attractions and sites to visit. The Four-Corners is also famous for fishing, hunting, hiking, biking, boating, skiing, camping, and more. At work, you will be able to make a difference in the lives of our patients and the community. For more information contact Mercedes Beckerhoff, RN, BSN, Nurse Recruiter at (505) 368-6466; e-mail mercedes.beckerhoff@shiprock.ihs.gov; or contact Gloria Redhorse, Staffing Specialist, at (505) 368-6095; e-mail gloria.redhorse-charley@shiprock.ihs.gov.

PHN/Student Supervisor

United American Indian Involvement, Inc./Los Angeles American Indian Health Project, Los Angeles, California

The Los Angeles American Indian Health Project is seeking a full-time PHN/ Student Supervisor. Qualifications include two years of experience working in the public health

field, working with Women's and Children's health, and supervising and coordinating student nurses, with a current California Registered Nursing License and Public Health Certificate, as well as a valid California's driver's license, an automobile, and automobile insurance. American Indian Preference Act (Title 25 U.S. Code, Section 472 & 473) applies. Please fax or e-mail resumes to the Human Resources Coordinator at fax (213) 202-3977; e-mail uaii_hr@yahoo.com. Open until filled.

Public Health Nurse

United American Indian Involvement, Inc./Los Angeles American Indian Health Project, Los Angeles, California

The Los Angeles American Indian Health Project is seeking a part-time Public Health Nurse with two year's experience working in the public health field, two year's experience working with HIV/AIDS treatment/prevention, and at least two year's experience working with seniors/elders. Also required are a current California Registered Nursing License and Public Health Certificate, as well as a valid California's driver's license, an automobile, and automobile insurance. American Indian Preference Act (Title 25 U.S. Code, Section 472 & 473) applies.

Please fax or e-mail resumes to the Human Resources Coordinator at fax (213) 202-3977; e-mail uaii_hr@yahoo.com. Open until filled.

Health Educator

United American Indian Involvement, Inc./Los Angeles American Indian Health Project, Los Angeles, California

The Los Angeles American Indian Health Project is seeking a part-time health educator. Masters degree in health education, public health, or related field preferred. Bachelor's degree in health education or related field and a minimum of two years experience in health education required. Also required are a valid California's driver's license, an automobile, and automobile insurance. American Indian Preference Act (Title 25 U.S. Code, Section 472 & 473) applies.

Please fax or e-mail resumes to the Human Resources Coordinator at fax (213) 202-3977; e-mail uaii_hr@yahoo.com. Open until filled.

Case Manager

United American Indian Involvement, Inc./Los Angeles American Indian Health Project, Los Angeles, California

The Los Angeles American Indian Health Project is seeking a full-time case manager. Bachelors' degree in health education or a combination of education, training and experience in the human services field equivalent to Experience in a health care facility or health care related field, with a valid California's driver's license, and car insurance. American Indian Preference Act (Title 25 U.S. Code, Section 472 & 473) applies.

Please fax or e-mail resumes to the Human Resources Coordinator at fax (213) 202-3977; e-mail uaii_hr@yahoo.com. Open until filled.

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THE IHS PRIMARY CARE PROVIDER



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

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