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Vascular Access Procedures for American Indian Dialysis Patients

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Background

More than 300,000 patients are currently receiving treatment for chronic renal failure with chronic dialysis in the United States.¹ Access complications are the leading cause for hospitalizations in this population.² This paper will examine renal failure and the complications of dialysis access in two groups of patients from two southwestern tribes.

In 1972, nationally, only 6% of patients with end-stage renal disease (ESRD) had diabetes mellitus, and less than 20% of ESRD patients were older than 65.¹ In the American Indian and Alaska Native (AI/AN) population, as in the United States in general, diabetes mellitus has become the leading cause of renal failure. In the general population, diabetes mellitus is the cause of 33.2% of treated ESRD, while 65.1% of incident cases of AI/AN ESRD is due to diabetes¹ (see Table 1). The prevalence of ESRD is higher in American Indians than in Caucasians with diabetes mellitus. When kidney failure develops, 25% of patients will die each year.¹

Table 1. Leading Primary Causes of Renal Failure in Two Southwestern Tribes

	Tribe A (N=60)	Tribe B (N=58)
Diabetes Mellitus	83%	62%
Chronic Glomerulonephritis	5%	17%
Hypertensive Nephropathy	10%	5%
Other causes	2%	10%
Unknown	0%	5%

As in the general population, comorbid conditions were common in the patients in the two groups studied. In the group from

Tribe A, 84% had diabetes and 97% had hypertension. In the Tribe B group, 66% had diabetes and 80% had hypertension. Renal failure associated with diabetes mellitus and hypertension is largely preventable by maintaining strict control of serum glucose and blood pressure.

Treatment Options for End-Stage Renal Disease

There are three general treatment approaches for ESRD.

No therapy. This alternative results in death in all cases when renal failure progresses to creatinine clearance of less than 15%.

Peritoneal dialysis. This modality is used less frequently than hemodialysis in the AI/AN population. It requires meticulous, sterile technique, and even with this, most catheters have to be removed within two years due to obstruction or infection; nevertheless, this technique has been successfully employed by

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patients without running water or electricity. Alternatives include continuous ambulatory peritoneal dialysis (CAPD), where exchanges are performed every six hours without a machine, or nighttime peritoneal dialysis, using a dialysis machine at home. Patients are often more independent on peritoneal dialysis than hemodialysis.

Hemodialysis: This therapy requires treatment attached to the dialysis machine at least four hours each session, three days a week, connected via arterial venous fistula, arterial venous graft, or central venous access.

Dialysis is expensive. Approximately one-half of Medicare's \$6 billion annual budget for ESRD is spent on the procedural costs of delivering dialysis to ESRD patients. Almost \$1 billion is spent annually on dialysis access procedures alone.³

Patency Rates for Grafts and Fistulas

The data on dialysis access procedures presented in this

Figure 1. Secondary Patency For AVF

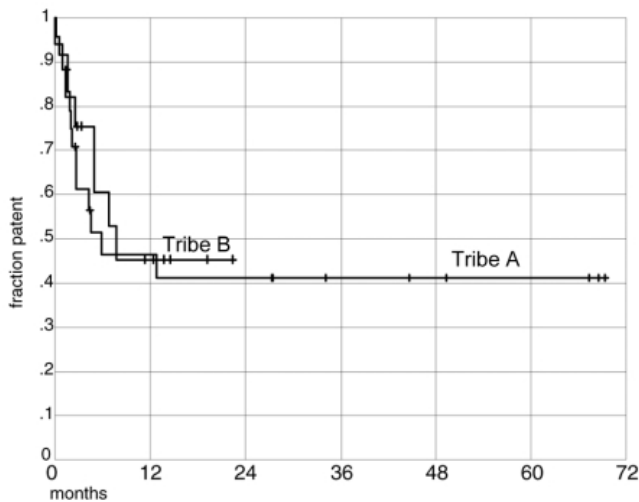
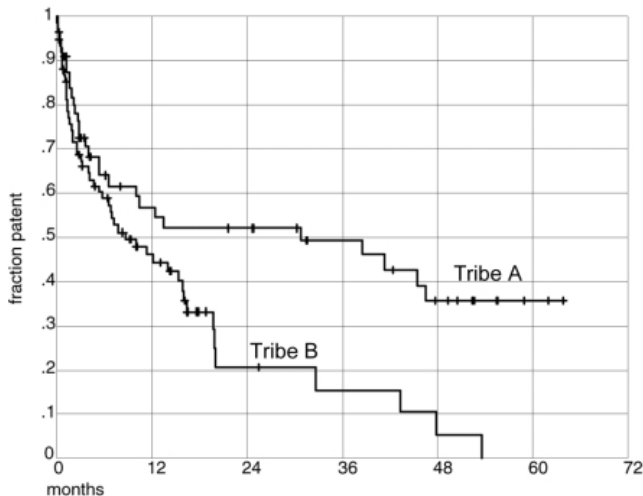


Figure 2. Primary Patency For PTFE Grafts



article are compiled from surgical data from consecutive patients cared for at the two hospitals serving the two patient groups. Results were reviewed from 60 patients from Tribe A who had 81 primary dialysis access procedures over a six-year period, and from 58 patients from Tribe B who had 94 primary dialysis access procedures over a three-year period. In the patients studied, 47% of those from Tribe A and 63% from Tribe B were male. The average age (mean \pm standard deviation) of the Tribe A patients was 57 ± 15 ; for Tribe B, this figure was 61 ± 14 .

Fifty-seven arterial venous polytetrafluoroethylene (PTFE) synthetic grafts were placed in Tribe A patients and 76 in Tribe B patients. Twenty-four native arterial venous fistulas (AVF) were placed in patients from Tribe A and 18 in those from Tribe B. The median primary synthetic graft patency (number of months before first thrombosis) was 31 months for PTFE grafts in Tribe A patient and 9 months in Tribe B patients ($p < .01$, log rank test). The median primary patency for AVF was 6 months for Tribe A and 8 months for Tribe B patients. However, unlike PTFE grafts, there was a large early loss, or failure to develop for AVF, but those that made it beyond six months had a slow rate of loss thereafter. These data are depicted in Figures 1 and 2.

The median secondary graft patency (number of months before the graft had to be abandoned despite revisions) was 48 months for PTFE grafts in Tribe A and over 26 months in Tribe B patients ($p < .02$, log rank test). The median secondary patency for AVF was 10 months for both Tribe A and Tribe B patients, but there was a leveling off of patency, unlike PTFE grafts (see Figures 3 and 4).

There was no difference in secondary patency for PTFE grafts between males and females, forearm vs. upper arm procedures, or right arm vs. left arm procedures. Furthermore, there did not seem to be differences in PTFE secondary graft patency related to age of the patient. There was a trend, which did not achieve statistical significance, for a shorter graft patency in patients with higher mean blood pressures recorded at the time of graft insertion.

Figure 3. Secondary Patency For AVF

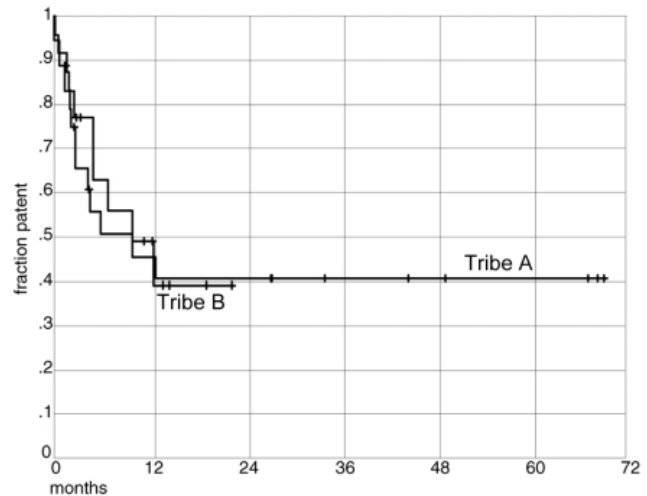
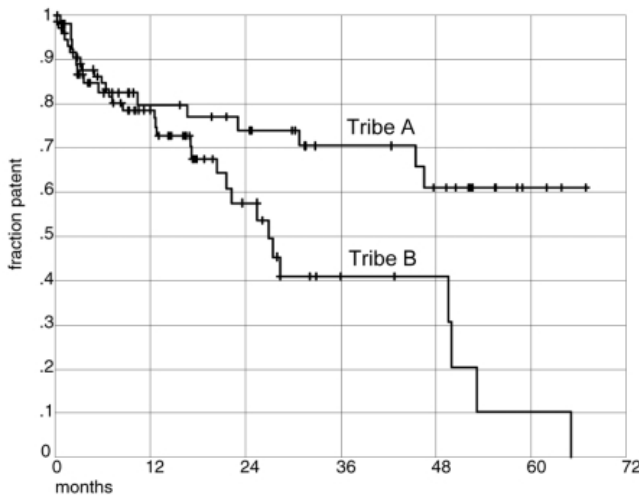


Figure 4. Secondary Patency For PTFE Grafts



Secondary patency of AVF tended to be slightly longer in males than females and in patients younger than 60 compared to those older than 60, but this was not statistically significant.

Comparison to national patency rates may be observed in Tables 2 and 3.

Table 2. Secondary Patency of Arterial Venous Fistulae

Reference Number	1 yr	2 yr	3 yr	Mean Patency
2	46%	40%	30%	
24	65%			
25	60- 88%	53- 88%	45-82%	
30				2.85 yrs

Table 3. Secondary Patency of PTFE Grafts

Reference Number	6 Months	1 yr	2 yr	3 yr	Mean Patency
2	75%	59%	50%	42%	
3		63- 90%		42- 60%	
11					21 mos
16		64%			
17		56%	50%		
24		79%	69%		
25		67- 80%	50- 68%	45- 82%	
26	80%	70%			
27	90%	78%	62%	50%	36 mos
28	95%	90%	85%		

Types of Access for Hemodialysis

Forearm loop (PTFE) graft. This was the most commonly performed procedure in our patient population. It is generally

placed on the non-dominant arm. These grafts should not be used in the first two to three weeks following insertion.

Straight forearm (PTFE) graft. These have lower patency rates in most series.

Upper arm curved (PTFE) graft. This is a secondary procedure in the United States, but is sometimes used as a primary procedure in Europe. You need to wait two to three weeks before using it.

AV fistula. Procedures include the Cimino (radial artery to cephalic vein at the wrist), snuff box, or occasionally an upper arm connection between the cephalic or basilic (transposed to a more superficial location) veins and the brachial artery. These procedures give a lower immediate patency rate than PTFE grafts, but are self healing and can last years longer than grafts. They have lower complication rates (infection, steal, etc.) than PTFE grafts, but one should wait at least six weeks following surgery before they can be used for dialysis.

AV fistulas are used in less than 25% of patients in the United States, except in New England, where almost 60% of patients undergo these procedures. The primary failure rate is 9- 30%.^{3,4} The published patency rates show reduced access survival in females and diabetics (mean primary patency 2.4 years in females vs. 5.1 years in males, and only 0.9 years in diabetics).⁵ Upper arm AV fistulas require transposition of the vein if the basilic vein is used, and are associated with an increased risk for “steal” syndromes and arm swelling.⁶

Short or long term central line access may be accomplished using one of a number of products including tesio, permacath, vascath, ashcath, etc. These can be used immediately after placement, and the silastic cuffed catheters have a lower thrombosis rate and lower rate of infectious complications than other designs. The average patency is 12 months for the long term catheters.⁷ Central vein stenosis occurs in 50% of veins that have had subclavian vein catheters.⁸

Complications

Thrombosis is more common in women than men, more common in diabetic patients than non-diabetic ones. Rates are higher if the serum albumen level is <3 g/dL, and are possibly increased in patients receiving erythropoietin.⁹ A more detailed discussion of thrombosis will be found below.

“Steal” syndrome and arterial insufficiency are more common in diabetic patients. This complication occurred in 1/24 (4%) of patients from Tribe A and 0/18 (0%) of patients from Tribe B having AVF, and required ligation of the fistula in the one Tribe A patient. Steal occurred in 5/57 (9%) Tribe A and 2/ 76 (3%) Tribe B patients having PTFE grafts. One of the Tribe B patients required banding of his graft, and the graft had to be removed in two Tribe A

patients for this condition. The nationally reported incidence of this complication is 2-3%.

The incidence of infection in the literature is 16% for PTFE

grafts vs 4% for AVF.¹⁰ Management is controversial, and might include graft removal, partial graft removal, long term antibiotics, etc. The actual incidence of infection is hard to determine, as most patients have some swelling and redness due to tissue reaction and venous hypertension during the first two to three weeks after the insertion of PTFE grafts. It is common for physicians to prescribe antibiotics for them during this time. Cellulitis over a graft can usually be treated without graft removal, but infections at anastomotic sites with external drainage generally require removal of part or all of the graft.

In the AI/AN patients studied, there were no infections after AVF, but 9% of patients developed infections after PTFE placement and 60% of those so infected required removal of part or all of the graft. All of our patients receive prophylactic antibiotics with vancomycin for PTFE grafts and cefazolin for AVF.

The incidence of pseudoaneurysms in the literature is 6% for PTFE grafts. Aneurysms in AVF are common, but seldom require treatment.¹¹

Venous hypertension is generally troublesome only for two to three weeks after insertion, but may persist, particularly in patients who have subclavian vein thrombosis or stenosis. Other complications include congestive heart failure or carpal tunnel syndrome.¹²

Cause of Thrombosis

The cause of thrombosis is neointimal hyperplasia, which is caused by elaboration of extracellular matrix from smooth muscle cells in response to platelet aggregation. Of occluded grafts, 90% have venous stenosis at the graft to vein junction, 29% have both venous and arterial stenosis, and only 1% have isolated arterial stenosis. Fourteen percent will have an upstream venous stenosis. Secondary causes include compliance mismatch (grafts are rigid compared with native vessels), shear forces related to turbulent flow and dp/dt pressure effects, and hypercoagulable state caused by decreased protein c activity, lupus

anticoagulant, heparin induced thrombocytopenia, decreased antithrombin III activity, or antiphospholipid antibodies. Generally the function of proteins is deficient, but the quantity is normal, so routine testing is not helpful.

Thromboses may be delayed by avoiding central lines, since central vein stenosis is associated with a prior subclavian line in 42-50% of cases, and internal jugular lines in 0-10% of cases. Repeated antecubital vein punctures may also lead to vein stenosis. In general, the use of a primary AVF is recommended, when possible. While blood pressure must be controlled, dehydration should be avoided; vasodilators are the antihypertensive agent of choice. Doppler surveillance may prolong graft patency by allowing repair of grafts before they clot.¹³ The sensitivity of this test to detect problems is 80-95%.¹⁴ However, a controlled trial of surveillance and prophylactic angioplasty failed to prolong secondary graft patency.^{15,16}

Anticoagulants such as aspirin are not helpful. Patients with very low albumin levels¹⁷ or those with a history of repeated thromboses and normal radiologic studies may benefit from coumadin. Low dose radiation is not effective in prolonging patency.¹⁸

Treatment of Thrombosis

Generally, satisfactory results are obtained if intervention occurs within two weeks of clotting. Success has been reported up to four months following thrombosis, but the highest success is achieved if it takes place within 48 hours.¹⁹

Mechanical fragmentation of the clot with thrombolysis and angioplasty of the associated stenosis is the treatment of choice (using Tissue Plasminogen Activator, or t-PA). This procedure takes about 20 minutes. Patency rates are comparable to surgical treatment in recent but not older studies, but costs may be higher.^{21,22} An important advantage over surgical repair is that upstream stenosis can be identified.

Radiologic thrombolysis and angioplasty was first reported in 1983; short term success rates were 85-94%¹⁰; long term rates were 41-76% at 6 months and 31-45% at 12 months.²⁰ Stenting is only useful for subclavian vein stenosis, where six month patency is 76% and 12 month patency is 35%. Generally, surgical thrombectomy alone is unsuccessful, especially if the graft is older than six months. The primary patency rate in the literature for thrombectomy alone is 32% at six months.²⁰ The best results for surgical repair occur when a segment is added to the graft to jump above the level of the venous stenosis. This may require jumping above a joint.

The secondary patency rate is good for primary procedures and for first revisions, but becomes progressively worse for subsequent revisions. The success rates for first, second, and third revisions reported in the literature are 65%, 53%, and 44%, respectively.²⁰

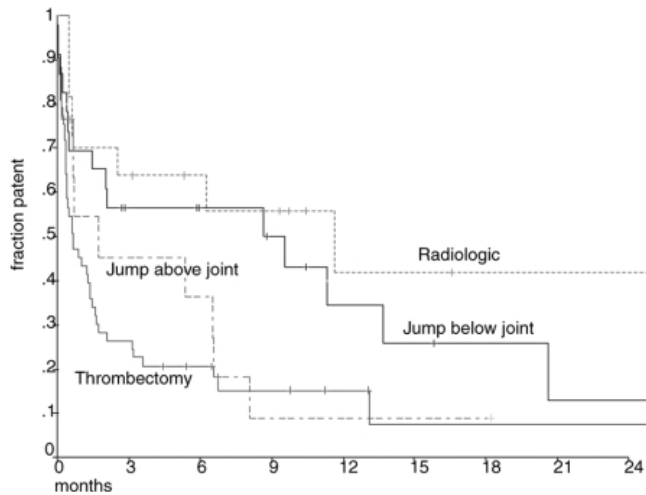
In our patients, there were 124 procedures done for clotted access. Sixty one were first occurrences, 33 second occurrences, 18 third occurrences, and 12 were for four or more occurrences. The success rate fell progressively after the first revision.

A variety of procedures were performed to restore patency



of thrombosed PTFE grafts. The most commonly performed procedures were thrombectomy (56 patients), jump graft below a joint (23 patients), jump graft above a joint (12 patients), and radiologic thrombolysis and angioplasty (19 patients). Nine patients had other procedures performed. The best patency rates were for a jump graft below a joint and radiologic thrombolysis with angioplasty. These two procedures were comparable in patency rates. Thrombectomy alone had the worst success. The success rates of these procedures is depicted in Figure 5.

Figure 5. Time To First Thrombosis After Procedure



Treatment of Steal Syndromes and Arterial Insufficiency

Banding often has poor success or results in thrombosis of the graft. Currently, bypass is the favored technique, when possible, as it works the best and does not risk graft loss.²³ Ligation of the graft is required in 2-3% of patients.¹⁷

Infection

Prevention is best achieved by the use of prophylactic antibiotics and sterile technique, and the avoidance of too many procedures on same graft. The most common infections are *Staphylococcus aureus* (50-70%) and *Staphylococcus epidermidis*. Other infections include enterococcus, enterobacter, and pseudomonas.²⁵

Pseudoaneurysms

Pseudoaneurysms almost never rupture in AVFs, but should be fixed in PTFE grafts if they are greater than 2 to 3 cm in size.

Future Trends

It is likely that there will be improvements in graft materials and that they will be used earlier, with less thrombosis. Kidney transplantation will be more accessible and will yield better results. More aggressive treatment of associated conditions will improve outcomes. Longer dialysis sessions, as is done in Europe, may become more commonly used in America.

Conclusions

In both Tribes considered in this paper, diabetes is now the leading cause of renal failure, and affects both women and men equally. Most of these patients end up receiving surgical procedures for hemodialysis. Arteriovenous fistulas had a higher initial failure rate than PTFE grafts in both patient populations, but those that last a year have longer patency than grafts. The primary and secondary patency rates for Tribe B are less than those for Tribe A patients for PTFE grafts. Radiologic thrombectomy with angioplasty has as good results as surgical revisions as a treatment for graft thrombosis.

There is a need for controlled studies to ascertain the role of graft surveillance, optimal blood pressure management, the identification of patients requiring anticoagulants for hypercoagulable states, and better means to identify those patients likely to benefit from arteriovenous fistula as opposed to PTFE grafts. Early placement of access in patients with progressive ESRD reduces the need for temporary access procedures and may reduce the incidence of subclavian vein stenosis.

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COMMENTARY

Optimal Vascular Access for American Indian Dialysis Patients: The Primary Care Provider's Role

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Vascular access complications are a major cause of morbidity for patients treated with hemodialysis, and represent a large cost burden for the health care system. Current efforts to improve outcomes for patients are based on clinical practice guidelines developed by the National Kidney Foundation as part of the Dialysis Outcomes Quality Initiative (DOQI, <http://www.kidney.org/professionals/doqi/index.cfm>).

Guidelines on vascular access that IHS primary providers should be aware of include the following:

Guideline 7 - Preservation of Veins for AV Access

A. Arm veins suitable for placement of vascular access should be preserved, regardless of arm dominance. Arm veins, particularly the cephalic veins of the non-dominant arm, should not be used for venipuncture or intravenous catheters. The dorsum of the hand should be used for intravenous lines in patients with chronic renal failure. When venipuncture of the arm veins is necessary, sites should be rotated.

B. Instruct hospital staff, patients with developing ESRD

(creatinine >3 mg/dL), and all patients with conditions likely to lead to ESRD, to protect the arms from venipuncture and intravenous catheters. A MedicAlert® bracelet should be worn to inform hospital staff to avoid IV cannulation of essential veins.

C. Subclavian vein catheterization should be avoided for temporary access in all patients with chronic renal failure due to the risk of central venous stenosis.

Guideline 8 - Timing of Access Placement

A. Patients should be referred for surgery to attempt construction of a primary AV fistula when their creatinine clearance is <25 mL/minute, their serum creatinine level is >4 mg/dL, or within 1 year of an anticipated need for dialysis. The patient should be referred to a nephrologist prior to the need for access to facilitate chronic renal failure treatment and for counseling about modes of ESRD care, including hemodialysis, peritoneal dialysis, and renal transplantation.

B. A new primary fistula should be allowed to mature for at least 1 month, and ideally for 3 to 4 months, prior to cannulation.

C. Dialysis AV grafts should be placed at least 3 to 6 weeks prior to an anticipated need for hemodialysis in patients who are not candidates for primary AV fistulae.

D. Hemodialysis catheters should not be inserted until hemodialysis is needed.

Guideline 9 - Access Maturation

A. A primary AV fistula is mature and suitable for use when the vein's diameter is sufficient to allow successful cannulation, but not sooner than 1 month (and preferably 3 to 4 months after construction).

B. The following procedures may enhance maturation of AV fistulae:

1. Fistula hand-arm exercise (e.g., squeezing a rubber ball with or without a lightly applied tourniquet) will increase blood flow and speed maturation of a new native AV fistula.
2. Selective obliteration of major venous side branches will speed maturation of a slowly maturing AV fistula.
3. When a new native AV fistula is infiltrated (i.e., presence of hematoma with associated induration and edema), it should be rested until swelling is resolved.

C. PTFE dialysis AV grafts should not routinely be used until 14 days after placement. Cannulation of a new PTFE dialysis AV graft should not routinely be attempted, even 14 days or longer after placement, until swelling has gone down enough to allow palpation of the course of the graft. Ideally, 3 to 6 weeks should be allowed prior to cannulation of a new graft.

D. Patients with swelling that does not respond to arm elevation or that persists beyond 2 weeks after dialysis AV access place-

ment should receive a venogram or other non-contrast study to evaluate central veins.

E. Cuffed and noncuffed hemodialysis catheters are suitable for immediate use and do not require maturation time.

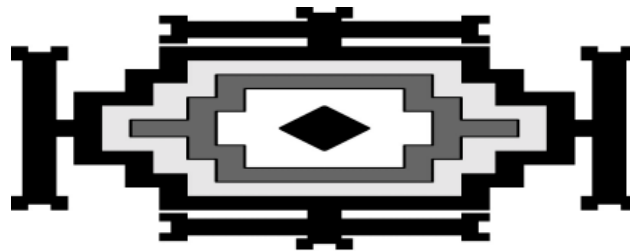
Guideline 29 - Goals of Access Placement - Maximizing Primary AV Fistulae

A. Primary AV fistulae should be constructed in at least 50% of all new patients electing to receive hemodialysis as their initial form of renal replacement therapy. Ultimately, 40% of prevalent patients should have a native AV fistula.

B. Patients should be reevaluated for possible construction of a primary AV fistula after failure of every dialysis AV access.

C. Each center should establish a database to track the types of accesses created and the complication rates.

The most important goal is to increase the proportion of patients with native AV fistulas. This is likely to occur if patients are referred early for vascular access placement. Indian health care physicians who refer patients to surgeons, nephrologists, and dialysis units should be aware of the success rates of individual providers in meeting the goals outlined in Guideline 29 above.



When Is A Glucose Not A Glucose?

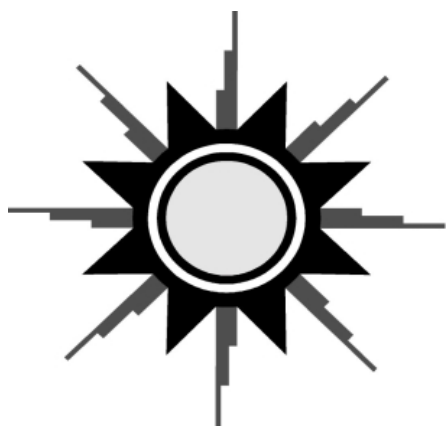
An Overview of *Logical Observation Identifier Names and Codes (LOINC)*, The Next Generation of Laboratory and Clinical Standards

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What is LOINC?

The Logical Observation Identifiers Names and Codes (LOINC) database provides a standard set of universal names and codes for identifying individual laboratory results (e.g., hemoglobin, serum sodium concentration), clinical observations (e.g., discharge diagnosis, diastolic blood pressure), and diagnostic study observations (e.g., PR interval, echocardiographic left ventricular diameter, chest x-ray impression). The purpose of LOINC is to facilitate the exchange and pooling of results, such as blood hemoglobin, serum potassium, or vital signs, for clinical care, outcomes management, and research.

LOINC is part of a larger movement that seeks to overcome a longstanding "islands of information" problem in health care by developing universal identifiers (names and codes), reference terminologies, and vocabularies for use in exchanging and analyzing data. Although it has wider implications, the development of LOINC to date has focused on developing standard codes and names for laboratory test results. The LOINC database currently contains over 15,000 codes for laboratory tests.



One of the key issues LOINC is intended to address arises from the lack of consistency in test naming conventions from laboratory to laboratory, a condition that complicates the process of interfacing and exchanging laboratory data. It can be exceptionally difficult for someone outside a given laboratory to unequivocally grasp what that laboratory's test descriptions mean. In short, laboratory test names tend to serve a highly parochial function and do not lend themselves to larger data communications needs.

History of LOINC

First released in April 1996, LOINC quickly met with strong interest and has been endorsed or adopted, or both, by a broad spectrum of organizations including the College of American Pathologists, the American Clinical Laboratory Association, Kaiser Permanente, Lab Corp, Mayo Medical Group, Quest Diagnostics, the US Navy, and several Canadian provinces.

The first goal of the LOINC committee was not to create test codes *per se*, but rather to define a formal structure for observations that would distinguish tests that were clinically different and then use this semantic structure to create a database of clinically distinct names. Thus, a "serum potassium" and a "24-hour urine potassium" would be separate observation names in the database. Once this database was populated, the production of test codes was a simple matter of assigning unique codes to the entries in this database.

The goal was to achieve a level of granularity in the test name definition that would map one to one to the separately reported observations on a clinical laboratory report. This was the rule of thumb used for creating LOINC names: if a test has its own column on a clinical report, or has a reference range that is significantly different from other tests, or has clinical significance distinct from other closely related names, it should be assigned a separate name.

Structure of a LOINC name

Each LOINC observation name identifies a distinct laboratory observation. The fully specified name of a test result or clinical observation has five or six main parts including the following: the name of the component or analyte measured (e.g., glucose), the property measured (e.g. substance concentration, mass, volume), the timing of the measurement (e.g., is it over

time or momentary), the type of sample (e.g., urine, serum), the scale or measurement (e.g., qualitative versus quantitative), and, where relevant, the method of measurement (e.g., immune blot, enzyme immunoassay). These can be described formally with the following syntax:

<analyte/component>:<kind of property>:<time aspect>:<system(sample)>:<scale>:<method>

Some examples of fully specified names would be:

6777 GLUCOSE:MCNC:PT:SER/PLAS:QN
1502 GLUCOSE:1H POST 100 G GLUCOSE
 PO:MCNC:PT:SER:QN
2947 SODIUM:SCNC:PT:BLD:QN

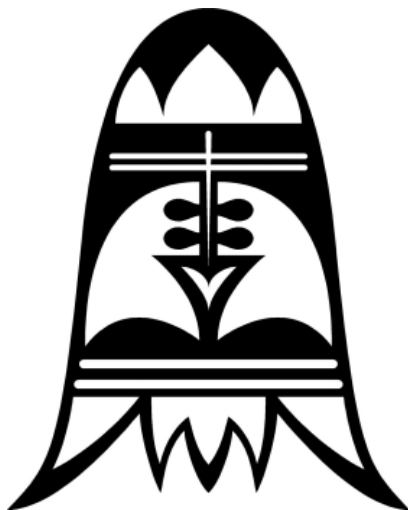
LOINC in electronic messages

Laboratories and managers of medical records systems should record the LOINC codes as attributes of their existing test/observation master files and use LOINC codes and names

in the Observation ID field (OBX-3) of the HL7 OBX segment message to identify laboratory results. Most laboratories identify tests in these messages by means of their internal code values (test names). Receiving medical informatics systems cannot fully “understand” the results they receive unless they either adopt the producer’s laboratory codes or invest in the work to map each laboratory’s code systems to their internal code system.

If medical information producers who wish to communicate with each other used the LOINC codes to identify their results in data transmissions, this problem would disappear. The receiving system with LOINC codes in its master vocabulary file would be able to understand and properly file HL7 messages that identified clinical observations via LOINC codes. Similarly, government agencies would be able, within limits, to pool results for tests from many sites if they were reported electronically using LOINC codes. The LOINC codes should be of interest to hospitals, clinical laboratories, doctor’s offices, state health departments, government health care providers, third-party payers, and organizations responsible for quality assurance and utilization review. □

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.

Family Practice Physicians Chapa-De Indian Health Program, Inc; Auburn, California

Chapa-De Indian Health Program is seeking two additional BC/BE family practice physicians, one to join our Auburn staff and one to join our Woodland staff. Chapa-De is a comprehensive community care system located in beautiful Northern California. We provide medical, dental, behavioral health, optometry, and pharmacy services for 18,000 registered patients in a four-county service area. Join our staff of four family practice physicians, a pediatrician, and a family nurse practitioner. Provide inpatient care at a nearby 100-bed hospital. Enjoy a competitive salary, excellent health benefits, every fourth night call, and an opportunity for IHS loan repayment. For more information please contact Darla Clark, Clinical Administrator, at (530) 887-2800; e-mail at dccdihp@yahoo.com. CVs can be faxed to (530) 887-2849.

Primary Care Physicians

Crownpoint Service Unit, Crownpoint, New Mexico

The Crownpoint Healthcare Facility is seeking primary care physicians for its family practice model hospital in the high desert of the Four Corners region. This area is beautiful, with many opportunities for great outdoor activities, such as exploring Anasazi ruins, hiking or biking on the mesa, fishing, and skiing.

The hospital includes a six-bed ER, a 17-bed inpatient unit (medicine and pediatrics), a labor and delivery unit, and a busy outpatient clinic. We serve rural Navajo communities in northwestern New Mexico.

We have an energetic and dedicated medical staff with a wide variety of experience and interests, both at work and at leisure. We are expecting several vacancies beginning in summer and fall 2001.

For more information you can visit us online at www.technet.nm.net/~jphunter/medicalstaff.htm. Please call us at (505) 786-6411 if you are interested in interviewing or if you have questions. You will probably get our voice mail, but please leave a message and we will get back to you. CVs can be faxed to (505) 786-5840. We look forward to hearing from you.

Health Services Administrator

Redbird Smith Health Center; Sallisaw, Oklahoma

If you are interested in a position as a health services administrator working for the Cherokee Nation, contact Anita Christie, Cherokee Nation Personnel Department, P. O. Box 948, Tahlequah, Oklahoma 74465; phone (918) 456-0671, ext. 2452; or e-mail achristie@cherokee.org.

Pediatrician

Crow Service Unit; Crow Agency, Montana

The Crow Service Unit has an opening for a general pediatrician starting in Fall 2000. We currently have one pediatrician, two internists, one obstetrician, and eight family practitioners at our site. We serve two satellite clinics as well as the central clinic located within the hospital. We care for Crow and Northern Cheyenne Indians at our facility. For more information contact Jean Parker, MD, Chief Medical Officer at (406) 638-3301 or Dr. Lori Byron, Pediatrician at (406) 638-3301. CVs can be faxed to (406) 638-3572.

Staff Dentist

Stockbridge-Munsee Mohican Tribe; Bowler, Wisconsin

The Stockbridge-Munsee Tribal Health and Wellness Center has an immediate opening for a staff dentist. This new Health and Wellness Center is opening in November and would like a dentist to join the dental health team in providing a full scope of dental services to our clients. The new center has a fully equipped six chair dental department that serves over 1700 Natives Americans in the service area of Shawano County. The facility is situated in the northern woods of Wisconsin and offers a great array of hunting and fishing opportunities in the

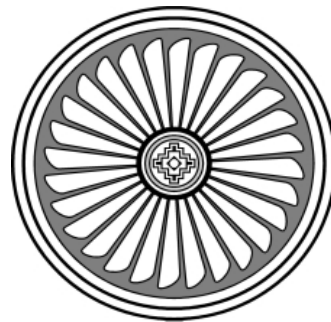
center of Wisconsin's winter wonderland. There is an 18-hole golf course owned and operated by the tribe located in the family oriented environment of the local communities. The Wisconsin school system is one of the best in the nation. The clinic is located only 45 minutes from Green Bay to the east and Wausau 45 minutes to the west.

This position offers benefits that include health insurance, paid time off, and others negotiated by contract. The salary is \$70,000 to \$90,000 per annum, depending on experience. Send CV to JoAnn Schedler, Administrator, Stockbridge-Munsee Health Center, P. O. Box 86, N8705 Moh He Con Nuck Rd., Bowler, WI 54416; telephone (715) 793-4144; or e-mail Dr. Fuller at Docfreds63@yahoo.com.

ICU, Medical, Surgical, and Pediatric Nurses

Phoenix Indian Medical Center; Phoenix, Arizona

Interested in a career that is challenging? Want to add a new dimension to your nursing experience? Then we would like you to join our team. Phoenix Indian Medical Center (PIMC) is seeking Registered Nurses who are competent in all aspects of patient care and who want more for their career. Many of our nurses work 12-hour shifts including days, nights, weekends, and holidays. As a Federal facility, we offer excellent employment benefits. Salary is based on education and years of experience. For more information, contact Jeannette M. Yazzie, RN, BSN, Nursing Management and Program Analyst, at (602) 263-1582; or email jeannette.yazzie@pimc.ihs.gov.



Dental Officer

Citizen Potawatomi Nation; Shawnee, Oklahoma

The Citizen Potawatomi Nation has an immediate opening for a Dental Officer to join a team of health care professionals, providing the full scope of dental care to our patients. This is a new four-chair facility and a new service provided to our patients in our health complex. This position will be responsible for the development, management and administrative leadership of the dental clinic. Applications are being accepted from all interested parties. The position may be permanent or temporary, full-time, part-time, or on a contractual basis. Send CVs or resumes to Shirl Eastep, Human Resource Director, Citizen Potawatomi Nation, 1601 S. Gordon Cooper Dr., Shawnee, OK 74801.

Pharmacist

Dentist

St. Regis Mohawk; Hogansburg, New York

St. Regis Mohawk Health Services has an exciting opportunities for a pharmacist and a dentist at their ambulatory health center that provides medical, dental, community outreach, and alcohol rehabilitation and mental health services on the Mohawk Reservation, located in the beautiful St. Lawrence river valley approximately an hour from Lake Placid, New York; Montreal, Quebec; and Ottawa, Ontario. The pharmacist position would

include involvement in patient education, clinical interventions, drug therapy dosing, and monitoring and quality improvement activities. The dental position includes public health and patient education, clinical interventions, school health programs, and quality improvement activities. Both positions offer a competitive salary, excellent benefits, paid interview and relocation expenses, paid holidays and vacation, and an allowance for continuing education.

To obtain a preemployment packet, please contact Mr. Rob Cree by phone at (800) 647-7839; fax (518) 358-2797.



MEETINGS OF INTEREST

AMIA 2000 Annual Symposium

November 4-8, 2000; Los Angeles, California

Sponsored by the American Medical Informatics Association, the theme of the meeting is "converging information, technology, and health care." For more information, go to www.amia.org.

AMSUS 107th Annual Meeting

November 5-10, 2000; Las Vegas, Nevada

This is the annual meeting of the Association of Military Surgeons United States, and the theme of this year's event is "Information management – One key to Healthcare Success." For more information, go to www.amsus.org/meetings.

Executive Leadership Development Program

Session One D: December 3-7, 2000 or Session One E: March 25-29, 2001, Locations To Be Announced

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.

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, and presentations. At the end of each session, participants will receive a certificate of accomplishment from the sponsoring academic institutions. After all three sessions have been completed, participants will receive a certificate of completion from the Indian Health Service. For more information contact Danielle Steward, ELDP Program Assistant, Indian Health Service Clinical Support Center, Two Renaissance Square, Suite 780, 40 N. Central Avenue, Phoenix, Arizona 85004-4424; phone (602) 364-7777; fax (602) 364-7788; e-mail ELDP@phx.ihs.gov; Website www.ihs.gov/nonmedicalprograms/eldp.

The 2001 Meeting of the National Councils of the IHS January 29 - February 1, 2001; 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 2001 annual meeting January 29 - February 1, 2001 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. Indian Health Program Chief Executive 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. Internet online registration is available. For information go to: <http://www2.ihs.gov/Nccd/Index.asp>.

**USPS: A Pediatric Odyssey. The 35th Annual Uniformed Services Pediatric Seminar
March 3-7, 2001; Louisville, Kentucky**

This meeting is sponsored by the Uniformed Services (which includes the US Public Health Service) Section of the American Academy of Pediatrics, and is intended for general pediatricians and primary care providers. It will be held at the Hyatt Regency, in Louisville, Kentucky. More information about the seminar can be obtained from by going to the website cme@aap.org.

**National Conference on Pharmaceutical Care to Underserved Populations
April 3-7, 2000; Chapel Hill, North Carolina**

The overall goals of this conference are to review pharmacy services within sites and systems serving underserved popula-

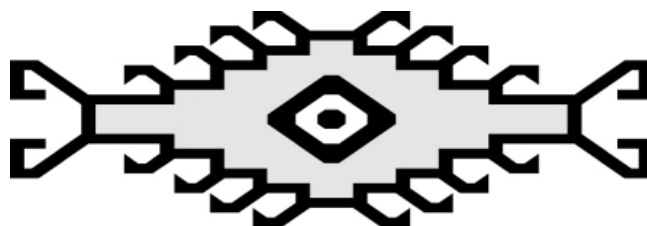
tions and to examine critical tasks needed to include pharmacy services into programs serving underserved populations.

The sponsors of the conference are the School of Pharmacy and Cecil Sheps Center for Health Services Research, University of North Carolina at Chapel Hill; the Bureau of Primary Health Care, Health and Resources Services Administration (HRSA); and the North Carolina Association of Pharmacists.

For more information, contact Steven Moore, National Conference on Pharmaceutical Care to Underserved Populations, School of Pharmacy Continuing Education, CB# 7360, Beard Hall, Chapel Hill, NC 27599-7360; telephone (919) 966-8138; e-mail steve_moore@unc.edu. There is a fee of \$150; continuing education credits are available.

**American Indian Kidney Conference
July 11-13, 2001; Oklahoma City, Oklahoma**

The National Kidney Foundation of Oklahoma and the Oklahoma American Indian Kidney Council will sponsor this second annual conference to be held at the Clarion Meridian Hotel and Convention Center in July 2001. Information on prevention of hypertension, diabetes, and kidney disease and coping with kidney disease will be provided over the three days. The target audience included patients and their families, community health providers, medical professionals, and tribal leaders. Continuing education will be available for healthcare providers. For more information, contact Jo Ann Holland, RD, CDE, at the Lawton Indian Hospital, Lawton, Oklahoma; phone (580) 353-0350, extension 560.



A PROGRAM FOR CURRENT AND FUTURE INDIAN HEALTH CARE EXECUTIVES



VISION

To prepare confident and competent individuals and teams for executive work within Indian health care settings.

PURPOSE

To educate current and future leaders to continually improve the health status of Indian people.

MISSION

To ensure new competencies and fresh perspectives to the current and future leaders in Indian health care settings by developing partnerships with various tribes, universities, foundations, and private sector organizations.

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.

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.

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, and presentations. At the end of each session, participants will receive a certificate of accomplishment from the sponsoring academic institutions. After all three sessions have been completed, participants will receive a certificate of completion from the Indian Health Service.

SCHEDULED SESSION DATES:

Session One (D)
December 3-7, 2000

Session One (E)
March 25-29, 2001

Sessions Two (C)
February 25-March 1, 2001

Session Two (D)
June 24-28, 2001

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 Pharmaceutical Education as a provider of continuing pharmaceutical education. This activity has been awarded 26 contact hours (2.6 CEUs) under Universal Program Number 600-000-99-096-L04.

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 contact hours.

CONTACT:

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Phone: (602) 364-7777 Fax: (602) 364-7788
E-mail: ELDP@phx.ihs.gov
Web site: www.ihs.gov/nonmedicalprograms/eldp

NATIVE AMERICAN MEDICAL LITERATURE □

The following is an updated MEDLINE search on Native American medical literature. This computer search is published regularly as a service to our readers, so that you can be aware of what is being published about the health and health care of American Indians and Alaska Natives.

The Clinical Support Center cannot furnish the articles listed in this section of THE PROVIDER. For those of you who may wish to obtain a copy of a specific article, this can be facilitated by giving the librarian nearest you the unique identifying number (UI number), found at the end of each cited article.

If your facility lacks a library or librarian, try calling your nearest university library, the nearest state medical association, or the National Library of Medicine (1-800-272-47887) to obtain information on how to access journal literature within your region. Bear in mind that most local library networks function on the basis of reciprocity and, if you do not have a library at your facility, you may be charged for services provided.

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7(2):141-6, 2000 Mar-Apr. 20319178

Novins D, Fleming C, Beals J, Manson S. Commentary: quality of alcohol, drug, and mental health services for American Indian children and adolescents. *American Journal of Medical Quality*. 15(4):148-56, 2000 Jul-Aug. 20404588

Daniel M, O'Dea K, Rowley K, McDermott R, Kelly S. Glycated hemoglobin as indicator of social environmental stress among indigenous versus westernized populations [see comments]. *Preventive Medicine*. 29(5):405-13, 1999 Nov. 20033937

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Lebowitz N, Bella J, Roman M, Liu J, Fishman D, Paranicas M, Lee E, Fabsitz R, Welty T, Howard B, Devereux R. Prevalence and correlates of aortic regurgitation in American Indians: the Strong Heart Study. *Journal of the American College of Cardiology*. 36(2):461-7, 2000 Aug. 20386489

NCME VIDEOTAPES AVAILABLE

Health care professionals employed by Indian health programs may borrow videotapes produced by the Network for Continuing Medical Education (NCME) by contacting the IHS Clinical Support Center, Two Renaissance Square, Suite 780, 40 North Central Avenue, Phoenix, Arizona 85004.

These tapes offer Category 1 or Category 2 credit towards the AMA Physician's Recognition Award. These CME credits can be earned by viewing the tape(s) and submitting the appropriate documentation directly to the NCME.

To increase awareness of this service, new tapes are listed in THE IHS PROVIDER on a regular basis.

NCME #767

Breast Cancer Diagnosis and Treatment: An Update for the Primary Care Physician (60 minutes)

The past decade has witnessed dramatic changes in the diagnosis and treatment of breast cancer. Complex genetic testing, new imaging modalities and biopsy techniques, breast conservation surgery and reconstructive procedures, and new chemotherapy and radiation protocols are among the topics that primary care physicians need to know about in order to manage state-of-the-art care for their patients. In this video, Dr. Roses and his colleagues review the most recent advances in caring for patients with breast malignancies, keeping in mind the central role of the primary care physician.

NCME #770

Abnormal Uterine Bleeding: An Ultrasound Approach (60 minutes)

Abnormal uterine bleeding can be experienced by a woman at any age. If organic pathology is absent, the bleeding is either anovulatory in premenopausal women or atrophic in menopausal women. Sonography, in the form of saline infusion sonohysterography (SIS), has gained widespread use as a useful tool for diagnosing this problem in women. Once the domain of obstetricians, the use of endovaginal probes with fluid instilla-



tion can enhance the assessment of the endometrium. Dr. Goldstein offers a step-wise approach to the diagnosis, evaluation, and treatment of abnormal uterine bleeding with a special emphasis on using this procedure to its fullest advantage.

NCME #771

Domestic Violence: Intervention Strategies for the Physician (60 minutes)

Domestic violence can affect anyone — including your patients. It occurs in every age group, race, culture, social class, and in all types of relationships. For example, every year, one to two million women in the U.S. are victims of partner abuse. Elder abuse is also increasingly being reported. Since domestic violence is so common, physicians need to be prepared to routinely screen for it in their practices and intervene appropriately. Dr. Alpert provides an overview of the scope and complexities of domestic violence and offers practical measures to help physicians identify and manage patients who are victims. In addition, real-life survivors speak of their own experiences dealing with domestic violence and of their encounters with health care professionals.



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THE IHS PRIMARY CARE PROVIDER



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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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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.

Authors should submit at least one hard copy with each electronic copy. References should be included. All manuscripts are subject to editorial and peer review. Responsibility for obtaining permission from appropriate tribal authorities and Area Publications Committees to publish manuscripts rests with the author. For those who would like more information, a packet entitled "Information for Authors" is available by contacting the CSC at the address below or on our website at www.csc.ih.s.gov

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