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Management of ST-Segment Elevation Myocardial Infarction: Thrombolytic Guidelines

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The fundamental pathophysiology of acute myocardial infarction involves the rupture of lipid-laden plaque in a coronary artery, creating a highly thrombogenic milieu. The formation of clot leads to activation of fibrin, resulting in expansion of the clot and complete occlusion of the coronary artery. The administration of fibrinolytic agents to recanalize occluded coronary arteries was a breakthrough in the treatment of acute myocardial infarction (AMI).

Authors Comment

As the incidence and prevalence of cardiovascular disease (CVD) increases among Native Americans, we in Indian health must continuously strive to further support and improve the prevention efforts related to CVD and its risk factors, with a primary focus on diabetes mellitus, as well as efforts to reduce and eliminate hypertension, dyslipidemia, smoking, obesity, and physical inactivity among those we serve. In addition, for those of us providing direct care to our Native American patients, our responsibilities also include our resolve to provide the optimal care to the patient with CVD, including the aggressive acute management of myocardial infarction.

We, at the Native American Cardiology Program, hope that we may be able to assist by offering a succinct review and basic guidelines for the treatment of acute myocardial infarctions, which could be used or modified to provide the optimal treatment plan at your facility. This is the second of a number of articles and reviews we at the Native American Cardiology Program, as your partners in Indian health, will offer for your review. We hope you will find this series helpful to you and the patients we mutually serve.

James M. Galloway, MD, FACP, FACC

Thrombolysis unequivocally reduces mortality in patients who present with symptoms of AMI and ST-segment elevation or left bundle branch block on electrocardiogram (ECG).[1] Patients with ST-segment elevation MI treated with thrombolytics had a 25% relative reduction in mortality, with a 2% absolute reduction in mortality; this translates into 26 lives saved per 1000 people treated.[2]

Higher risk patients benefit more from reperfusion therapy, including those with anterior wall ST elevation or left bundle branch block; they have greater mortality benefits with lytics than do those with uncomplicated inferior myocardial infarctions. Patients over age 75 achieve greater absolute mortality reduction than younger patients but have higher complication rates. Patients with ST depression or without ST elevation do not benefit from thrombolytic therapy.

Thrombolytic therapy salvages myocardium; the earlier blood flow to the heart muscle is restored, the smaller the infarct size and the better the prognosis.[3,4,5] Nonetheless,

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thrombolytic therapy administered up to 12 hours after symptom onset still achieves significant reductions in mortality. Patients with pain for greater than 24 hours generally do not benefit from thrombolytic therapy.

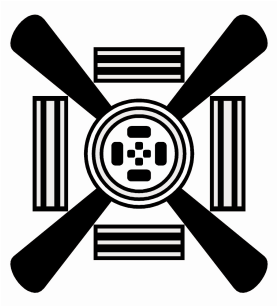
An important confounder in the evaluation of patients with possible AMI is the presence of symptoms for longer than 6 to 12 hours. Many of these patients have a stuttering course and days of unstable angina that culminates in AMI. It is important to determine whether there was a time at which their symptoms intensified or became continuous, resulting in their decision to seek medical care. This would then be the moment at which their acute MI symptoms began.

The national standard calls for a door-to-EKG time of 10 minutes and a door-to-needle time of 30 minutes for the delivery of thrombolytic therapy to patients with AMI. To achieve these goals, the emergency room staff must have a high level of vigilance for high-risk patients and for those with symptoms suggestive of an acute myocardial infarction. A classic presentation may be that of a patient with substernal chest pressure radiating to the neck, jaw, or back with associated dyspnea, nausea, or diaphoresis. Patients may describe their chest symptom as a heaviness, squeezing, or pressure rather than a pain.

It should be remembered that certain patient populations, namely diabetics, women, and the elderly, might have more atypical presentations: their primary complaint may be dyspnea, abdominal pain, fatigue, or back pain, although most will also have a component of chest pain or discomfort. Cultural and language differences may make assessment of the symptoms more difficult; for those for whom English is not their primary language, the use of a translator, if available, will produce a more useful history. Clearly, people communicate better in their primary language under stressful circumstances.

A rapid triage and EKG, focused exam, bloodwork, and the placement of two large bore intravenous (IV) access sites must be done quickly. Aspirin, 162 to 325 mg, should be given to the patient to chew. If the initial ECG is unremarkable but the patient continues to have signs or symptoms suggestive of AMI, the ECG should be repeated. If the patient is not hypotensive, sublingual nitroglycerin should be given in an effort to relieve the pain. Caution should be used in patients who have taken sildenafil (Viagra) in the preceding 24 hours, given the significant risk of hypotension caused by concurrent nitrate administration.

The presence of l mm of ST-segment elevation in two contiguous leads should result in a rapid review of exclusion criteria to determine if there are any contraindications to thrombolytics. If there are no contraindications, thrombolytic therapy should be given immediately with care to administer the proper dose for the chosen agent over the appropriate infusion time. The patient should be monitored with continuous telemetry and blood pressure checks to watch for reperfusion arrhythmias, resolution of ST elevation, or hypotension. After administration of the thrombolytic agent, the patient should be transferred to an intensive care unit or tertiary care center for further monitoring for arrhythmias or complications associated with myocardial infarction or thrombolytic therapy. If interventional cardiology services are readily available (door-to-angioplasty time of 90 minutes or less), this may be an approach preferable to thrombolytic therapy.



Thrombolytic Agents

Fibrinolytic agents convert plasminogen to plasmin that then degrades fibrin, a central structure of acute thrombus, with the goal of opening the infarct-related artery. Nonspecific fibrinolytic agents, streptokinase being the prototype,[6] activate both circulating and fibrin-bound plasminogen, creating a systemic depletion of fibrinogen, plasminogen, and factors V and VIII. Second generation fibrinolytics are recombinant tissue-type plasminogen activators, tPA being the prototype. They are more fibrin-specific, create less systemic depletion of fibrinogen and may lyse more highly cross-linked fibrin.[7] This has been borne out by the findings that patients who present later after symptom onset are more likely to achieve optimal reperfusion with the newer, more fibrin-specific agents such as tPA and TNK-tPA than with streptokinase.

Third generation thrombolytic agents are even more tissue-specific and can be delivered in bolus form; TNK-tPA is the prototype of this group. These newer, more fibrin-specific agents result in less systemic coagulopathy and a more focused action at the site of thrombotic occlusion. They also achieve higher arterial patency rates and improved blood flow, which correlates with survival.[8,9] When various regimens are compared, accelerated tPA with heparin showed a 40% improvement in survival over standard regimens. Recent data on TNK-tPA found it to be equivalent in effect to tPA.[10]

A major breakthrough in the fibrinolytic field has been the development of bolus agents with equivalent efficacy and cost to front-loaded tPA. Ease of administration with equal effect make them particularly appealing. Dosing and efficacy trials highlight the importance of appropriate dosing and administra-

tion: there was a significant decrease in the risk of intracranial bleeding when the total tPA dose was decreased from 150 mg to 100 mg over a three-hour infusion; front-loaded tPA resulted in better patency rates than standard infusion tPA without higher intracerebral bleed rates.

Evaluation of larger thrombolytic trials reveals significant dosing errors in the administration of both streptokinase and tPA ranging from 11.5% to 13.5%. These errors resulted in significantly higher mortality rates when compared with those who received the properly administered medication, making cost and outcome analysis more complicated. Bolus therapy markedly decreases the likelihood of dosing or administration errors, thereby improving the actual efficacy of the lytic agent and reducing mortality by eliminating complications from misadministration.[11,12,13]

The determination that rapidity of administration of lytic agents improves outcomes makes ease of administration a central issue. In facilities where the presentation of acute myocardial infarction is relatively infrequent, the ability of the staff to rapidly reconstitute and deliver lytic agents at a specific, weight-adjusted dose over a very specific infusion time is a major challenge. Given a 13% rate of errors in thrombolytic administration in hospitals with adequate volume, staff, and training to run clinical trials, facilities with lower frequencies of thrombolytic administration and less staffing could expect similar if not significantly higher error rates, making bolus therapy an important consideration for both staff and patients.

Adjunctive Therapies

Aspirin has clearly been shown to reduce mortality in acute myocardial infarction and other acute coronary syndromes both with and without the administration of thrombolytic agents. Any patient without an aspirin allergy, presenting with symptoms suggestive of an acute coronary syndrome should immediately receive 162 to 325 mg of aspirin to be chewed. In the event of an aspirin allergy, clopidogrel at a dose of 75 mg may be substituted.

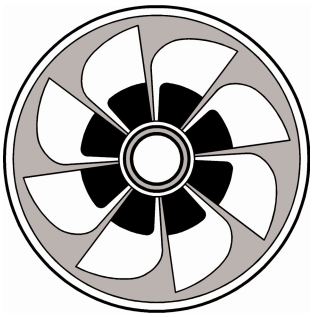
Beta blocker therapy should be administered to patients with acute myocardial infarction in the absence of contraindications such as active bronchospasm, heart block, significant bradycardia (a rate of less than 60 bpm), hypotension, or congestive heart failure. The initial dosing should be metoprolol, 2.5 to 5 mg intravenously over 2 minutes every 5-10 minutes as tolerated, stopping for bradycardia, hypotension, or other signs of intolerance to the therapy. Beta blocker therapy reduces the risk of arrhythmias in the face of ischemia, as well as decreasing the ischemic burden by lowering heart rate, blood pressure, and contractility.

Nitrates are also helpful in patients with ongoing ischemia, although their benefit is less well proven. Sublingual nitroglycerin should be administered to patients when first presenting with chest pain, if it is in the absence of hypotension or other contraindications. Nitrates work by dilating the coronary arteries, thereby improving myocardial perfusion; they also decrease blood pressure, thereby decreasing the work of the myocardium.

If the patient continues to have chest pain, intravenous nitroglycerin at a starting dose of 5 mcg/min should be initiated in an effort to relieve the pain. Care should be taken not to induce hypotension, since this decreases coronary and cerebral perfusion. In patients with inferior myocardial infarctions, who may have concurrent right ventricular infarction and hence be very volume sensitive, nitroglycerin may induce a profound and rapid decrease in blood pressure. These patients respond to fluid resuscitation but may require liters of fluid. Nitroglycerin should be stopped if hypotension is not easily and rapidly resolved. If blood pressure is borderline and a single adjunctive therapeutic agent must be chosen, beta blocker therapy is of more importance than ongoing nitrate therapy.

Pain increases sympathetic drive that works the heart harder and increases the risk of arrhythmias. Morphine sulfate may be given in order to provide pain relief to the patient having coronary ischemia or an acute myocardial infarction. The main goal should be coronary reperfusion and prompt thrombolytic administration. Intermittent doses of morphine (1-4 mg intravenous boluses every 20 minutes) may be given for comfort if the patient is not hypotensive. Since thrombolytic administration may engender hypotension, care should be given to avoid simultaneous administration of multiple agents that might lower the blood pressure. Morphine does not generate any mortality benefit and is the least important medication in the armamentarium of therapies for acute myocardial infarction.

Angiotensin converting enzyme inhibitors (ACEI) have been shown to decrease dilation of the left ventricle early after myocardial infarction. They have also been shown to improve survival after myocardial infarction, especially in patients with depressed left ventricular function. Intravenous administration of these agents should be avoided. Oral administration of



ACEI may be appropriate in patients who are not hypotensive after administration of beta blocker therapy, nitrates, and thrombolytics. Unless the patient has been on an ACEI as an outpatient, a shorter acting agent should generally be used, since hypotension may result.

Caution should be taken not to administer too many agents that may cause hypotension simultaneously. Hypertension may increase ischemia, infarct size, and complication rates. For patients with uncontrolled hypertension and very high pressures (>180/110 mm Hg), target goals should be modest so as not to cause stroke. These patients are not candidates for thrombolytics. For patients with moderate hypertension, the goal should be a normal blood pressure of 100- 130/60-80 mm Hg. Patients not on dialysis, with serum creatinine levels above 2.0 mg/dl should not receive ACEI acutely unless they have been on them chronically with a stable creatinine.

Hypokalemia potentiates arrhythmias in ischemic myocardium. Numerous studies have shown that maintaining serum potassium levels above 4.0 mg/dl decreases the risk of arrhythmias such as ventricular tachycardia. Hypomagnesemia also increases arrhythmic potential but, more importantly, prevents the correction of hypokalemia since magnesium is exchanged for potassium in the kidneys. Data on magnesium replacement in acute myocardial infarctions has not shown any clear benefit; however, replacement for patients with low magnesium levels (<2.0 mg/dl) is appropriate in order to prevent hypokalemia and arrhythmias.

Heparin therapy is an essential adjunct to tPA and TNK-tPA. The fibrin-specific character of these agents results in a targeted effect and a short half-life, with the potential for reocclusion of the infarct artery. The addition of intravenous heparin to these agents prevents that reocclusion and partly accounts for the higher patency rates and improved outcomes in patients treated with the newer generation fibrinolytics. Higher doses of intravenous heparin have resulted in higher bleeding complications, and a strict weight-adjusted protocol is recommended to decrease complications.[14]

The recommended heparin protocol is 60 units/kg as a bolus, with a maximum of 4000 units, followed by an infusion of 12 units/kg/hour, at a maximum rate of 1000 units/hour.[15] Recent smaller studies have found weight-adjusted, subcutaneous low molecular weight heparin to be equivalent to[16] or better.[17,18,19] than unfractionated intravenous heparin; this may be due in part to a very predictable, lasting anticoagulation effect. The benefit of using subcutaneous low molecular weight heparin is ease of administration, less potential for dosing errors, and lower bleeding complications. Renal failure impairs the clearance of low molecular weight heparin and clear recommendations on appropriate dosing in this situation are not yet available.

Streptokinase, on the other hand, results in systemic fibrinogen depletion and a hypocoagulable state that can last for up to 24 hours. The addition of intravenous heparin to streptokinase has been shown to increase bleeding complications and it is only recommended in high risk circumstances. Intravenous heparin may be given with streptokinase cautiously in patients with atrial fibrillation, large anterior wall myocardial infarction, an embolic event, or left ventricular thrombus, and then only when a PTT is documented to be less than 70 seconds, and no sooner than four hours after streptokinase administration. Subcutaneous, unfractionated heparin may be given at a dose of 12,500 units every 12 hours for 48 hours in other circumstances, but is not requisite.

Complications

The most dreaded complication of fibrinolytic therapy is intracerebral bleeding. Serious bleeding occurs in a dose-response fashion, which has led to the adjustment of dosing recommendations to minimize bleeding while maximizing reperfusion benefits. Most intracerebral bleeds occur within the first 24 hours of thrombolytic administration. Age greater than 65 years old, weight less than 70 kg, and uncontrolled hypertension on presentation increase the risk of bleeding. One of the goals of developing newer thrombolytic agents has been to decrease the risk of CNS complications. Unfortunately this has not come to pass, and the more fibrin-specific agents actually have higher intracerebral hemorrhage rates than strep-

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— *The Editors*

tokinase. Of those treated with tPA or TNK-tPA, 1.9% suffer intracerebral hemorrhage; streptokinase without concurrent heparin therapy has the lowest intracerebral hemorrhage rate, especially in the elderly.

Hypotension during infusion of the fibrinolytic agent is possible and occurs most commonly with streptokinase. Patients must be monitored closely, and other agents that may induce hypotension should be stopped first if this occurs. Many patients will respond to fluid administration or initiation of dopamine; the thrombolytic should be continued, if at all possible. For refractory hypotension the infusion may need to be stopped or slowed. Staff should be vigilant for signs of acute blood loss. Persistent hypotension should evoke consideration of potential complications of acute myocardial infarction, such as right ventricular infarction, heart block, ischemic mitral regurgitation, pericardial tamponade, pump failure, or myocardial rupture. Auscultation for new murmurs or rales, evaluation of telemetry rhythm, and scrutiny of right-sided leads in patients with inferior MI may help elucidate the etiology of the hypotension.

Reperfusion arrhythmias are common and usually do not cause hemodynamic compromise. The most common is accelerated idioventricular rhythm (AIVR), which is a wide-complex ventricular rhythm at a rate of 110 bpm or slower. Less frequently, ventricular tachycardia occurs and may cause hemodynamic compromise or degenerate into ventricular fibrillation. Close telemetry monitoring of the patient during administration of the fibrinolytic agent enables documentation of reperfusion arrhythmias and provides resources should the patient develop a hemodynamically significant rhythm disturbance.

Hypokalemia on initial laboratory studies should be treated expeditiously to decrease the risk of serious dysrhythmias. Beta-blocker therapy also decreases the risk of ventricular ectopy and tachycardia, and should be given whenever possible, as discussed above.

Conclusion

Acute myocardial infarction remains a major cause of mortality in the US. Fibrinolytic therapy was a tremendous advance in the therapy of myocardial infarctions and has led to significant reductions in mortality. Rapid administration and accurate dosing are essential to achieve optimal benefit at the lowest risk possible. Newer agents available in bolus form provide easy administration with optimal effect and less risk of dosing errors. Close telemetry and blood pressure monitoring are essential to assure safety. Aspirin, electrolyte replacement, beta-blocker therapy, and pain control with nitrates and morphine are all important adjuncts to reperfusion therapy. Administration of heparin, when indicated, is essential for optimizing and maintaining arterial patency. The goal of therapy is to reduce mortality and salvage myocardium through reperfusion. Time is myocardium and myocardial salvage is survival. □

References

1. The GUSTO Investigators: An international randomized trial comparing four thrombolytic strategies for acute myocardial infarction. *N Engl J Med.* 1993;329:673-682.
2. Yusuf S, Collins R, Peto R, et al. Intravenous and intracoronary fibrinolytic therapy in acute myocardial infarction: overview of results on mortality, reinfarction and side-effects from 33 randomized trials. *European Heart Journal.* 1985;6:556-585.
3. Fibrinolytic Therapy Trialists' Collaborative Group. Indications for fibrinolytic therapy in suspected acute myocardial infarction: collaborative overview of early mortality and major morbidity results from all randomised trials of more than 1000 patients. *Lancet*. 1994; 343:311-322.
4. Mathey D, Sheehan F, Schofer J, et al. Time from onset of symptoms to thrombolytic therapy: a major determinant of myocardial salvage in patients with acute transmural infarction. *J Am Coll Cardiol.* 1985;6:518-525.
5. Zahn R, Schiele R, Gitt A, et al. Impact of prehospital delay on mortality in patients with acute myocardial infarction treated with primary angioplasty and intravenous thrombolysis. *American Heart Journal.* 2001;142;1:105-111.
6. Gruppo Italiano per lo Studio della Streptochinasi nell' Infarcto Miocardico (GISSI). Effectiveness of intravenous thrombolytic treatment in acute myocardial infarction. *Lancet.* 1986;1:397-401.
7. Tanswell P, Tebbe U, Neuhaus K, et al. Pharmocokinetics and fibrin specificity of alteplase during accelerated infusions in acute myocardial infarction. *J Am Coll Cardiol*. 1992;19:1071-1075.
8. Ohman E, Harrington R, Cannon C, et al. Intravenous thromboysis in acute myocardial infarction. *Chest.* 2001;119;1:S253-277.
9. Lincoff A. GUSTO IV: Expanding therapeutic options in acute coronary syndromes. *Am Heart J.* 2000;140:S103-114.
10. ASSENT-2 Investigators. Single-bolus tenecteplase compared with front-loaded alteplase in acute myocardial infarction: the ASSENT-2 double-blind randomised trial. *Lancet.* 1999; 354:716-722.
11. Cannon C. Exploring the issues of appropriate dosing in the treatment of acute myocardial infarction: potential benefits of bolus fibrinolytic agents. *Am Heart J.* 2000;140:S154-60.
12. Cannon C. Thrombolysis medication errors: benefits of bolus thrombolytic agents. *Am J Cardiol*. 2000;85:17C-22C.
13. Cannon C. Multimodality reperfusion therapy for acute myocardial infarction. *American Heart Journal.* 2000;140:707-716.
14. Giugliano R, Cannon C, McCabe C, et al. Lower dose heparin with thrombolysis is associated with lower rates of intracranial hemorrhage: results from TIMI 10B and ASSENT I. *Circulation.* 1997;96:I-535.
15. Ryan T, Antman E, Brooks N, et al. 1999 update: ACC/AHA guidelines for the management of patients with acute myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee on Management of Acute Myocardial Infarction). *J Am Coll Cardiol.* 1999;34:890-911.
16. Wallentin L, Dellborg D, Lindahl B, et al. The low-molecular-10 weight heparin dalteparin as adjuvant therapy in acute myocardial infarction: the ASSENT Plus study. *Clin Cardiol.* 2001; 24(suppl3):I12-14.
17. Ross A, Molhoek P, Lundergan C, et al. Randomized comparison of enoxaparin, a low- molecular-weight heparin, with unfractionated heparin adjunctive to recombinant tissue plasminogen activator thrombolysis and aspirin: second trial of heparin and aspirin reperfusion therapy (HART II). *Circulation.* 2001;104:648-652.
18. The Assessment of the Safety and Efficacy of a New Thrombolytic Regimen (ASSENT)-3 Investigators. Efficacy and safety of tenecteplase in combination with enoxaparin, abciximab, or unfractionated heparin: the ASSENT-3 randomised trial in acute myocardial infarction. *Lancet.* 2001;358:742-750.
19. VandeWerf F. Modulating the coagulation cascade: new targets for antithrombotics and anticoagulants – new data in treatment of acute coronary syndromes. *Am Heart J.* 2001;142:S16-21.

THROMBOLYTIC GUIDELINES

Inclusion Criteria:

- Chest pain of duration greater than 30 minutes and less than 12 hours with EKG findings of 1 mm ST-segment elevation in two or more contiguous leads, or LBBB. If the patient has had pain for longer than 12 hours, the presence of a stuttering quality or a time at which the pain suddenly intensified and became unrelenting, if less than 12 hours from presentation, would prompt consideration for the administration of thrombolytic agents.
- Chest pain and ECG changes persisting after sublingual nitroglycerine.

Exclusion Criteria:

- Absolute Contraindications:
  1. Active internal bleeding (does not include menses).
  2. Suspected aortic dissection.
  3. History of hemorrhagic cerebrovascular accident at any time.
  4. History of nonhemorrhagic cerebrovascular accident within one year.
  5. Known intracranial neoplasm.

- Relative Contraindications:
  1. Severe hypertension on presentation (BP > 180/110).
  2. History of prior cerebrovascular accident, known intracranial aneurysm, or AVM.
  3. Current use of anticoagulants with INR > 2 - 3 or PT > 15.
  4. Known bleeding diathesis.
  5. Recent trauma (< 4 weeks).
  6. Traumatic or prolonged (>10 minutes) CPR.
  7. Major surgery within 3 weeks.
  8. Puncture of a noncompressible vessel.
  9. Recent internal bleeding (within 4 weeks).
  10. Prior exposure to streptokinase or APSAC (this contraindication is particularly important in the initial two year period after streptokinase or APSAC administration and applies to reuse of any streptokinase-containing agent, but does not apply to tPA).
  11. Previous allergic reaction to streptokinase.
  12. Pregnancy.
  13. Active peptic ulcer.
  14. History of chronic severe hypertension (BP > 160 systolic, > 100 diastolic).

Preparations:

1. All patients should have aspirin administered: 162 mg to 325 mg orally/chewed, unless contraindicated.
2. At least two, preferably three, large-bore IV lines should be placed.
3. Stool guaiac should be done to rule out heme-positive stool.
4. Blood work should be drawn before lytic administration, including type and hold.
5. Unnecessary invasive procedures should be deferred given added risk of bleeding.
6. Electrolytes should be replaced with a goal to keep potassium level above 4.0 mg/dl and magnesium level above 2.0 mg/dl. This should not delay lytic administration.
7. Beta-blocker therapy should be given to all patients unless they are in congestive heart failure, have active history of recent bronchospasm, are bradycardic to a heart rate of 60 bpm or less, have greater than first degree heart block, or are hypotensive with a systolic blood pressure below 100 mm Hg. Ideally, administer meto

prolo1 2.5 - 5 mg IV over 2 to 5 minutes and repeat, if necessary, every 10-15 minutes for up to 15 mg; if the patient falls below the above parameters at any point, the remaining doses are held.

8. Continuous EKG monitoring and BP monitoring is required to watch for arrhythmias and hypotension. Oxygen therapy should be administered if indicated for hypoxia or cyanosis.

TNK-tPA (Tenectaplase)

Patient Weight*(kg)	Patient Weight* (lbs)	TNKase (mg)	Reconstituted TNK (mL)
<60	<132	30	6
>60 to <70	>132 to <154	35	7
>70 to <80	>154 to <176	40	8
>80 to <90	>176 to <198	45	9
>90	>198	50	10
*Dosing based on actual or estimated patient weight.			

Dextrose-containing solutions cause precipitation, and all lines should be flushed with saline prior to administration if dextrose solutions have been administered.

Adjunctive therapy: Heparin, unfractionated, 60u/kg bolus, maximum 4000u, followed by 12u/kg/hr IV infusion, at a maximum rate of 1,000u/hr, following PTT levels every 6 hours to target range of 55-70 sec. Low molecular weight heparin, enoxaparin, 30 mg IV then 1 mg/kg SQ every 12 hours by a strict dosing schedule may be used instead of IV heparin. Heparin should be given before or at the time of TNK-tPA bolus.

tPA (Alteplase)

15 mg. bolus followed immediately by IV infusion of 0.75mg/kg (up to 50 mg) over 30 minutes followed immediately by 0.50 mg/kg (up to 35 mg) over the next 60 minutes (total infusion time 90 minutes).

Adjunctive therapy: Heparin, unfractionated, 60u/kg bolus, maximum 4000u followed by 12u/kg/hr IV infusion, at a maximum rate of 1,000u/hr, following PTT levels every 6 hours to target range of 55-70 sec. Low molecular weight heparin, enoxaparin, 30 mg IV then 1 mg/kg SQ every 12 hours by a strict dosing schedule may be used instead of IV heparin. Heparin should be given before or at the time of tPA infusion.

Streptokinase

1.5 million units IV over 1 hour.

Adjunctive therapy: Only in high risk patients, after discussion with a cardiologist, with a large or anterior MI, atrial fibrillation, previous embolus, or known LV thrombus, give IV unfractionated heparin, 60u/kg bolus, maximum 4000u, followed by 12u/kg/hr IV infusion, at a maximum rate of 1,000 u/hr. Start no sooner than 6 hours after streptokinase administration and only once the PTT is less than 2 times control. Check PTT levels every 6 hours with a target range of 55-70 sec.

Routine heparin administration in patients receiving streptokinase is not recommended unless the above, high-risk factors are present.

The Native American National Cardiovascular Disease Prevention Program

An alarming rise in the rate of coronary artery disease has been noted among Native Americans throughout the past several decades. Indeed, cardiovascular disease has become the leading cause of death among American Indians. This increase appears to be related to a rise in many cardiovascular disease risk factors, including the current epidemic of diabetes, as well as high blood pressure, dyslipidemia, obesity/overweight, smoking, and high cholesterol levels among American Indians.

Now, a prevention program has been created to address these disturbing trends in cardiovascular disease in Native American communities. While the focus on cardiovascular disease prevention is vital to develop the critical effectiveness needed in the specialized primary, secondary, and tertiary prevention efforts for cardiovascular disease, it is also clear that effective partnerships and collaboration with other programs, agencies, and organizations with a focus on primary prevention are essential to maximize our mutual efforts. The leadership, wisdom, and guidance of each effort by the Indian communities involved, as well as those of tribal/urban leaders, are well-recognized and important components of success. The cardiovascular disease prevention project is currently collaborating with the National IHS Diabetes Program as well as components of the National Institutes of Health, with efforts underway to work as one team to improve the health of American Indian people. Efforts are underway to develop even stronger relationships with these groups, as well as to develop multiple other collaborations.

There are currently three initial approaches of the Native American CVD Prevention Program:

- **Development of a broad national leadership.** This focus is based on sharing information, presentations, and conferences at many different levels within the Indian health community. Multi-agency efforts and potential resource development for the prevention of CVD among American Indians include American Indian leaders, government agencies, foundations, and specialty organizations.
- **Primary prevention efforts.** Activities supporting and dovetailing with the current IHS diabetes and the NIH CVD initiatives are underway. A number of multi-agency initiatives are under development to further support these efforts, including the development of Native American-specific community education programs, literature, and courses. A number of widespread CVD education programs for Public Health Nurses and Community Health Representatives will be held with topics ranging from prevention to CVD assessment and follow up. Community-based community health fairs, with a focus on CVD and diabetes, are being developed.
- **Secondary and tertiary prevention efforts.** A series of no-cost, regional, one-day intensive seminars on the "Prevention, Diagnosis and Treatment of Acute Coronary Syndromes" is being offered for medical providers working in Indian health. These one-day conferences are designed for primary care, emergency room, and internal medicine physicians, physician assistants, advance practice nurses, registered nurses, and others interested in the recent advances in the diagnosis, treatment, and prevention of acute coronary syndromes.

Current dates scheduled for the National ACS Conferences (Save the dates!):

- Flagstaff, Arizona: Flagstaff Medical Center, May 17, 2002
- Rosebud, South Dakota: June 20, 2002
- Gallup, New Mexico: August 7, 2002 (limited to PHNs/CHRs at this time)
- Cherokee, North Carolina: August 20-21, 2002
- Bismarck, North Dakota: September 16, 2002

These are confirmed dates; please watch for future postings for additional dates.

Accuracy of Using RPMS Data for Assessing Dental Exams in Individuals with Diabetes

Karen Carver, PhD, Statistician; and Stanley P. Griffith, MD, Medical Informaticist, both from the IHS Information Technology Support Center, Albuquerque, New Mexico; and Pat Ramsey, RN, Data Quality Consultant, Young, Arizona

GPRA measures, stemming from the Government Performance and Results Act of 1993, are reports that are required of the Indian Health Service (IHS) to assure that our agency is appropriately using its budgeted funding to provide a high quality of care to American Indians and Alaska Natives. This article is another in a series[1-3] reporting results from the GPRA Pilot Study, a study designed to investigate whether or not data already contained in the Patient Care Component (PCC), the primary clinical component of the Resource and Patient Management System (RPMS), IHS's healthcare information system, can be used to perform GPRA measurements with acceptable accuracy.

These data either are already or could be exported to a national database from which the measurements could be derived, thus reducing reporting burdens on Areas and local programs. Previous articles looked at using these data to measure the prevalence of childhood obesity, Papanicolaou (Pap) smear rates, and blood pressure control in individuals with diabetes. This article reports the results of the analysis of using data already in a national database to assess dental exams in individuals with diabetes.

Methods

In this study, a simple random sample of approximately 200 women between the ages of 18 and 65 who were diabetic (we used these criteria so the sample could be used simultaneously for an analysis of other measures) were selected at each of four geographically diverse facilities using data from the Headquarters (HQ) ORYX system, a national IHS database for local facilities participating in the Indian Health Performance Evaluation System. HQ ORYX data are derived from the data routinely exported from the PCC to the national level.

We then gathered pertinent information from the HQ ORYX system (demographics, date of visit, clinic code, ICD-9 diagnosis code) on all visits for each of these individuals during specified 9-12 month study periods. Detailed listings of these visits and associated information were provided to the manual chart reviewer. The individuals' charts were pulled and manually reviewed to determine if the individual had had a dental exam during any visit during the study time period.

These determinations were then compared with determinations from HQ ORYX data. For HQ data, a dental exam was said to have occurred on that visit if it was to a dental clinic or if the ICD-9 diagnosis code was V72.2 (dental examination). In addition, each visit for each of the study individuals was reviewed to determine 1) if any visits were missing from either the written chart or HQ data; 2) if there was documentation of a visit in the written chart, but not in HQ data or vice versa; or 3) whether or not a dental exam had occurred based on either the written chart or HQ data, which we then termed "best available" data.

Results

The numbers and percentages of individuals who had had a dental exam during the specified time period at each of the four facilities according to the written chart, HQ, and "best available" data are shown in Table 1. Table 2 lists the numbers and percentages of visits missing in the written chart or in HQ data at

Table 1. Numbers of individuals with diabetes who had a dental exam within the specified study period

	# Individuals	HQ Data		Chart Data		Best Available Data	
		#	%	#	%	#	%
Facility A	238	70	29.4	70	29.4	70	29.4
Facility B	200	71	35.5	71	35.5	71	35.5
Facility C	198	56	28.3	56	28.3	56	28.3
Facility D	200	52	26.0	52	26.0	52	26.0
Overall	836	249	29.8	249	29.8	249	29.8

Table 2. Agreement in visit data between the written chart and HQ data

	Total Visits	Visits with Errors		Visits Missing from HQ		Visits Missing From Chart		HQ Missed Dental Exam		HQ and Chart Matched	
	#	#	%	#	%	#	%	#	%	#	%
Facility A	3,912	12	0.3	5	0.1	2	0.1	5	0.1	3,900	99.7
Facility B	2,508	17	0.7	3	0.1	3	0.1	11	0.4	2,491	99.3
Facility C	3,822	22	0.6	17	0.4	0	0.0	5	0.1	3,800	99.4
Facility D	4,411	5	0.1	4	0.1	0	0.0	1	0.0	4,406	99.9
Overall	14,653	56	0.4	29	0.2	5	0.0	22	0.2	14,597	99.6

each facility, the numbers of visits for which the written chart documented a dental exam but HQ data did not, and the total number of visits for which the data elements described above exactly matched for both the written chart and HQ data.

Conclusions

Our data show that there is remarkable agreement between HQ data derived from the PCC and the written chart data both on whether or not a dental exam had occurred within a specified period for each individual (Table 1) and whether or not a dental exam had occurred during a specific visit (Table 2). This agreement was consistent across all facilities.

We suspect this accuracy of both individual and visit level data is because the combination of clinic codes and this diagnosis is reliably entered within the PCC system. Additionally, individual level data were even more accurate than visit level data. This was despite the fact that this measure looks for an event that is more likely to occur once during a relatively short time period in contrast to other measures that are derivations from multiple values or episodes, especially those that tend to be consistent over a period of time (e.g., median blood pressure, obesity[2,3]). For this measure, omitted data or data errors may still not skew the final calculation. For example, if there were actually two dental exams rather than one for an individual during the specified period and one was "lost," the individual will still be counted as having had a dental exam.

Limitations to the conclusions of this study include that this study only provides some of the first formal and rigorously studied, empiric data we have on this specific question. In addition, results and conclusions are based on data from only four facilities. As we begin to use PCC data for these kinds of measures, we need to continue to evaluate more and different kinds of data and measure their accuracy, in an ongoing fashion, at multiple and even more varied facilities.

Acknowledgements

The authors would like to thank Danny Macias for his assistance in providing the HQ data. □

References

1. Griffith SP, Garrett MD, Ramsey P. Accuracy of using PCC data for measuring childhood obesity. *The IHS Provider*. 2001;26:37-9.
2. Griffith SP, Ramsey P. Accuracy of using RPMS data for measuring Pap screening rates. *The IHS Provider*. 2001;26:89-91.
3. Griffith SP, Ramsey P. Accuracy of using PCC data for measuring BP control in individuals with diabetes. *The IHS Provider*. 2001;26:121-2.

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 #792

Update on Multiple Sclerosis: Living with Short- and Long-Term MS Part II *(50 minutes)* This is the second program in a series jointly sponsored by the National Multiple Sclerosis Society and the Network for Continuing Medical Education. It will explain how to improve the care of people with MS following initial diagnosis. The lives and medical histories of several actual patients – some with newly diagnosed MS and some who have had the disease for years – will be examined to provide practical insights into ways to enhance quality of life for those who are living with multiple sclerosis.

NCME #793

Childhood Obesity I: Clinical Evaluation and Treatment *(60 minutes)* Fast food. Video Games. Cutbacks in school physical education programs. These and other social forces are contributing to an astounding increase in the number of overweight kids. Some six million American children are now so obese that their health is endangered, and five million more on are on the threshold of this condition. The rate of childhood obesity is rapidly rising. Currently, it is estimated that one in three children is either overweight or at risk for obesity. Clinicians are discovering in children the diseases associated with excess body weight that were formerly seen mainly in adults, including type 2 diabetes and high blood pressure. What can health care providers do to stem the tide? When should they make a sensitive approach to parents and kids about this problem, and how can overweight or obesity in children be effectively managed in an appropriate manner? In this first program of a two-part series, Dr. Kolasa describes the prevalence of childhood obesity, discusses contributing factors, and offers screening and treatment strategies.

NCME #794

Childhood Obesity II: Prevention and Community Intervention *(60 minutes)* Preventing childhood obesity is

more than a clinical problem. School and local community involvement are crucial in stemming the tide of this growing epidemic. Important intervention and prevention strategies, such as healthy eating and exercise, are most effective when physicians work in tandem with community-based initiatives. In this second program of a two-part series, Dr. Kolasa examines ways that various school-based and community-supported programs can work hand-in-hand with clinical interventions to help overweight children lead healthier lives. Directors of these programs also offer their advice about methods that allow physicians to intervene early and to get involved with community efforts to forestall the development of obesity in our children.

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 Physician
Tuba City Indian Medical Center, Tuba City, Arizona

The Department of Family Medicine has an opening for a full time family physician starting July 1, 2002. The candidate must be BC or BE and US citizen. The Tuba City Family Medicine Department does full service family practice including low risk obstetrics, pediatrics, adolescent medicine, outpatient/urgent care, and continuity clinics. Satellite clinics are offered at our two area high schools in town and at a remote site. The practice includes the inpatient adult care unit and ICU. Call is one weekend out of five (when you are on the ward), and cross-covering one night a week.

We have an excellent medical staff, with some in-house specialists, including obstetrics and gynecology, general surgery, ENT, and orthopedic surgery. Salary and benefits are competitive, housing is provided, and loan repayment is available. The hospital is located on the western edge of the Navajo Reservation. The climate is high desert; we have abundant outdoor activities, nice neighbors, and a setting that is great for families or single folks. Sounds too good to be true? If you are interested, call Dr. Michael Truesdell at (928) 283-2406; or e-mail *mtrue1@tcimc.ihs.gov*.

Pediatric Physician
San Diego, California

Urban Indian Health Center in San Diego seeks part-time pediatrician. Requires MD, current California medical license, DEA, and BE/BC. Competitive compensation. Expect to work between 8 to 16 hours per week. We are looking for a devoted physician to develop the child health of the Native Indian Community. Please send CV to Dr. John Chau, SDAIHC, 2630 First Ave, San Diego CA 92103; or fax (619) 234-0206.

Registered Nurses: Medical and Surgical Units
Phoenix Indian Medical Center; Phoenix, Arizona

Interested in a career that is challenging and want to add a new dimension to your nursing practice? Then we would like *you* to join our team. The Phoenix Indian Medical Center (PIMC), a 127-bed community-based hospital, is seeking experienced registered nurses (GS-610- 7/9) who are competent in all aspects of patient care and who want more for their career. PIMC provides a wide range of primary care and specialty care services. The nurses work 12-hour shifts -- days, nights, weekends, and holidays. As a Federal facility, we offer excellent employment benefits. Salary is based on education and years of experience. Visit *Hospitalsoup.com* for more information. Contact Jeannette M. Yazzie, RN, BSN, Nursing Management and Program Analyst, Phoenix Indian Medical Center, 4212 N. 16th Street, Phoenix, Arizona 85016; telephone (602) 263-1582; fax (602) 263-1666; e-mail *jeannette.yazzie@pimc.ihs.gov*.

Intensive Care Unit Clinical Staff Nurses
Phoenix Indian Medical Center; Phoenix, Arizona

The Phoenix Indian Medical Center (PIMC), a 127-bed community based hospital, is seeking experienced registered nurses (GS-610-9/10) who are competent in all aspects of ICU patient care and want more for their career. The ICU has recently been renovated and offers the latest in patient care technology. PIMC provides a wide range of primary care and specialty care services. The nurses work 12-hour shifts – days, nights, weekends, and holidays. As a Federal facility, we offer excellent employment benefits. Salary is based on education and years of experience. Visit *Hospitalsoup.com* for more information. Contact Jeannette M. Yazzie, RN, BSN, Nursing Management and Program Analyst, Phoenix Indian Medical Center, 4212 N. 16th Street, Phoenix, Arizona 85016; telephone (602) 263-1582; fax (602) 263-1666; e-mail *jeannette.yazzie@pimc.ihs.gov*.

Cardiologist (non-invasive)
Gallup Indian Medical Center; Gallup, New Mexico

Gallup Indian Medical Center, located in the Navajo Area

IHS in western New Mexico, is recruiting a second non-invasive cardiologist to join the Internal Medicine group. GIMC is the largest hospital in the Navajo Area, with a wide referral area. The Internal Medicine group consists of eight internists. Included in the practice are echocardiography, treadmill stress echos, dobutamine stress echos, and pacemaker interrogation. Coronary artery disease and valvular heart disease are the predominant cardiac pathologies. Minimal call is associated with the position. Salary is competitive with IHS and New Mexico cardiology standards. For more information contact William Krzymowski, MD, FACP at telephone (505) 722-1342; or e-mail *wkrzymowski@gimc.ihs.com*.

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. Pay Rate $59,200 to $70,755 per year, commensurate with experience. Must pass a pre-employment 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*.

Nurse Practitioner (Primary Care – Corrections)
Salt River Pima-Maricopa Indian Community; Scottsdale, Arizona

Job Description: Will provide preventive, diagnostics and therapeutic health care services to members of the Salt River Pima-Maricopa Indian Community. Works on-site at the SRPMIC Detention Facility in coordination with the SRPMIC Health Department and Salt River Clinic. The position will require irregular work hours, including some evenings and weekends throughout a 40-hour work week. Duties will include: Obtains health history from each patient; takes vital signs, performs physical examinations and orders necessary laboratory tests, as needed. Physical exams may include: routine gynecological check ups, Pap smears, and cultures for laboratory examination. Interprets results of laboratory, x-ray and other tests; diagnoses and treats illnesses within parameters of professionally accepted standards for nurse practitioner, conferring with primary care physicians and specialists as needed. Adjusts treatment within established standing orders. Distinguishes between normal and abnormal findings to recognize various stages of serious physical, emotional, or mental problems. Refers difficult or complicated cases to physicians or other health care providers as appropriate. Writes prescriptions for medications within nurse practitioner's scope of practice. Instructs patients in the proper use of medications and possible side effects. Dispenses non-prescription medicines and other items as needed. Additional duties as required.

Skills/Requirements: A Bachelor's degree in Nursing and current registration as a professional nurse practitioner in the state of Arizona with content in family practice program of studies for nurse practitioner. Prefer Master's degree and two or more years of experience as registered professional nurse practitioner. Must maintain current certification and/or licensure appropriate to a nurse practitioner, including national certification (ANCC or AANP) and pursue a minimum of 10 CED hours annually. Must possess prescription privileges certificate from the state of Arizona, registered independent DEA number. Must have a valid Arizona driver's license and be able to meet SRPMIC insurance requirements. Pay Rate:$47,518 to $56,792 per year, commensurate with experience. Must pass a pre-employment 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*.

Licensed Clinical Social Worker
Greenville Rancheria; Greenville, California

Qualified applicant must have experience in mental health and substance abuse counseling. LCSW required. Would be serving Native Americans and non-Indians residing in Plumas

and Tehama Counties. Excellent benefits package. Pay D.O.E. Contact Stephen Jones at (530) 284-7990, ext. 226.

Dental Assistant/Registered Dental Assistant
Greenville Rancheria; Greenville, California

Looking for a friendly, knowledgeable, and professional individual with one to two years plus of experience in a dental clinic setting, an individual seeking to give nothing less than first class service and care to the patients of the Greenville Rancheria Dental Clinic. Excellent benefits package. Pay D.O.E.Contact Stephen Jones at (530) 284-7990, ext. 226.

Licensed Vocational Nurse
Greenville Rancheria; Greenville, California

Seeking a full-time nurse to provide clinical nursing, placing patients in rooms, taking vitals, providing immunizations, and taking chief complaints in a busy back office primary care setting. Clinic locations in Red Bluff and Greenville, California. Pay D.O.E. Contact Stephen Jones at (530) 284-7990, ext. 226.

Billing Supervisor
Greenville Rancheria; Greenville, California

Seeking a full time Billing Supervisor to provide operational and technical support. Must have knowledge of Medicare, MediCal and commercial billing. Knowledge of FQHS is desirable. Excellent pay/benefits. Contact Stephen Jones at (530) 284-7990, ext, 226.

Data Entry Clerk/coder
Greenville Rancheria; Greenville, California

Seeking a dependable and detail-oriented full time Data Entry Clerk/Coder. Must be computer literate and have basic keyboarding skills. Experience with ICD-9 coding a must. Must have an understanding of medical terminology. Billing background desirable. Excellent benefits package and competitive salary. Contact Stephen Jones at (530) 284-7990 ext. 226.

MEETINGS OF INTEREST □

Advances in Indian Health
May 1 - 3, 2002; Albuquerque, New Mexico

The 3rd Annual Advances in Indian Health Conference is offered for primary care physicians, nurses, and physician assistants who work with American Indian and Alaskan Native populations at Federal, tribal and urban sites. Medical students and residents who are interested in serving these populations are also welcome.

Both new and experienced attendees will learn about advances in clinical care specifically relevant to American Indian populations, with an emphasis on southwestern tribes. Opportunities to learn from experienced career clinicians who are experts in American Indian and Alaska Native health care will be emphasized. Indian Health Service Chief Clinical Consultants and disease control program directors will be available for consultation and program development.

The meeting will be held at the Sheraton Old Town Hotel, 800 Rio Grande Blvd. NW, Albuquerque, NM 87104; telephone (505) 883-6300; fax (505) 842-9863. The special conference room rate is $89.00 single or double occupancy, plus tax. The deadline for this rate is March 31, 2002.

A Registration Form is posted on the UNM CME web site at *http://hsc.unm.edu/cme*. The conference brochure will be available in February 2002. To be on our mailing list, please call the Office of Continuing Medical Education at (505) 272-3942. The brochure will also be available, in February, on the UNM CME website. For additional information please contact Kathy Breckenridge, University of New Mexico Office of Continuing Medical Education, at (505) 272- 3942 or Julie Lucero, Albuquerque Indian Health Service at (505) 248-4016.

Acute Coronary Syndrome Symposium
May 17, 2002; Flagstaff, Arizona
June 20, 2002; Rosebud, South Dakota
August 7, 2002; Gallup, New Mexico (limited to PHNs/CHRs at this time)
August 20-21, 2002; Cherokee, North Carolina
September 16, 2002; Bismarck, North Dakota

The Native American Cardiology Program is pleased to announce the initiation of its latest Cardiovascular Continuing Medical Education Program with its offering of the Indian Health Service's Acute Coronary Syndrome Symposium, to be held at the Flagstaff Medical Center in beautiful Flagstaff, Arizona on Friday, May 17, 2002. The full-day conference will include seminars on topics from ECG interpretation to the use of the latest medical interventions in cardiology.

There is no charge for clinicians working in the Indian health system but we do request prior registration to hold your seat; please call (928) 214-3920.

Women's Wellness Journey – A Lifetime Path
May 21-22, 2002; Green Bay, Wisconsin

This is a conference designed for women who are health care professionals or health care consumers, and who are interested in lifetime wellness. Hosted by the Bemidji Area Indian Health Service, this meeting will focus on spiritual, physical, emotional, and mental aspects of wellness in women of all ages. The two-day program is meant to be educational and fun. CEUs for some presentations may be available. It will be held at the Green Bay Radisson, Green Bay, Wisconsin. For further information, contact Jenny Jenkins at the Bemidji Area

Office, telephone (218) 444- 0488; e-mail *jennifer.jenkins@mail.ihs.gov*.

The IHS Physician Assistant and Advanced Practice Nurse Annual CE Seminar
June 3-7, 2002; Scottsdale, Arizona

Designed for physician assistants, nurse practitioners, nurse midwives, and pharmacist practitioners working for Indian health programs, this three-day CE seminar will provide an opportunity to network with peers/colleagues on issues of common concern, update knowledge of current health care trends and issues, develop new skills to improve patient care, and receive continuing education credit. The program will offer 20 hours of discipline specific continuing education designed to meet the needs of those providing primary care to American Indians and Alaska Natives. The seminar will be held at the Chaparral Suites Hotel, 5001 North Scottsdale Road, Scottsdale, AZ 85258; telephone (480) 949-1414. The agenda will include plenary and concurrent workshop sessions on a variety of clinical topics. The complete agenda and registration forms will be available by mid-April. A business meeting for all Advanced Practice Nurses will be held Monday, June 3rd through the morning of Tuesday, June 4th. The Physician Assistants' business meeting will tentatively be held Thursday evening, June 6th. A registration fee of $250 will apply for those registrants employed by compacting tribes or those in the private sector. For more information, contact CDR Dora Bradley at the IHS Clinical Support Center, telephone (602) 364- 7777; or email *theodora.bradley@mail.ihs.gov*.

The IHS Southwest Regional Pharmacy Continuing Education Seminar
June 7-9, 2002; Scottsdale, Arizona

The largest annual meeting for Public Health Service and tribal pharmacists and technicians, this seminar provides up to 15 hours of ACPE approved pharmacy continuing education credit. Hosted by the IHS Phoenix, Navajo, Tucson, Albuquerque, and California Areas and the California Rural Indian Health Board, the target audience is made up of pharmacists and technicians working in Indian health system pharmacies. The meeting will be held at the Chaparral Suites Hotel, 5001 North Scottsdale Road, Scottsdale, Arizona 85258. For more information, contact LCDR Ed Stein at the IHS Clinical Support Center; e-mail *Edward.stein@mail.ihs.gov* or look for Pharmacist Training at *www.pharmacy.ihs.gov*.

Summer Geriatric Institute
June 13-15, 2002; Albuquerque, New Mexico

The New Mexico Geriatric Education Center (NMGEC) announces their annual Summer Geriatric Institute. This year's meeting will present a comprehensive interdisciplinary view of the challenges of physical disability in older adults. Topics will include Frailty, Falls/Injuries, Arthritis/Joint Pain, Urinary Problems, and Neurologic/Sensory Impairment. The focus of the NMGEC is on providing geriatric/gerontologic education to health care providers, especially those caring for the American Indian population.

Registration fees are as follows: MD/DO/PhD, $245; PharmD, $195; Nurses, and others, $175; Students are admitted for free but still need to register. There will be tuition waivers for those working with elders in IHS or tribal facilities; contact the NMGEC for an application. This activity is co-sponsored by the IHS Elder Care Initiative.

For more information, contact Darlene Franklin, Associate Director, New Mexico Geriatric Education Center, Department of Family and Community Medicine, University of New Mexico Health Sciences Center, 1836 Lomas Blvd. NE, 2nd Fl., Albuquerque, New Mexico 87131-6086; telephone (505) 277-0911; fax (505) 277-9897; e-mail *dfranklin@salud.unm.edu*; website *http://hsc.unm.edu/gec*.

IHS National Council of Nurse Administrators (NCONA) Annual Meeting and Conference
June 10-14, 2002; Missoula, Montana

IHS nurse administrators are encouraged to attend the annual NCONA Meeting and Conference to be held at the Holiday Inn Missoula - Parkside, 200 S. Pattee Street, Missoula, Montana 59802; telephone (800) 399-0408 or (406) 721-8550; fax (406) 728-3472; Internet address *http://www.park-side.com*. The deadline to make your room reservations is May 9, 2002. The IHS Clinical Support Center is the accredited sponsor of this meeting. More information about the conference will follow.

The 3rd Annual American Indian Kidney Conference 2002
July 9 - 11, 2002; Oklahoma City, Oklahoma

The 3rd Annual American Indian Kidney Conference, entitled "Redefining Tradition: Today's Hope for Tomorrow's Health" will be held July 9-11 in Oklahoma City at the Clarion Meridan Hotel and Convention Center. This three-day conference will provide timely information on the prevention and treatment of kidney disease for patients, paraprofessionals, and professionals. On day three, July 11, professionals will be able to sign up for CME sessions; the IHS Clinical Support Center is the accredited sponsor. For additional information, contact JoAnn Holland at (580) 353-0350, ext. 560.

The Pharmacy Practice Training Program (PPTP): a certificate program in patient-oriented practice
July 22-25, or August 5-8, 2002; Phoenix, Arizona

The goal of this four-day training program for pharmacists employed by the Indian Health Service or Indian health programs is to improve the participant's ability to deliver direct patient care. This program encompasses the management of patient care functions in the areas of consultation, communication, interviewing techniques, laboratory test interpretation, conflict resolution, physical assessment, and disease state management. These techniques are taught utilizing case studies which include role playing and discussion. For additional information,

contact LCDR Ed Stein at the IHS Clinical Support Center, Two Renaissance Square, 40 N. Central Avenue, Suite 780, Phoenix, Arizona 85004; or look for Pharmacist Training at *www.pharmacy.ihs.gov*.

Measuring Diabetes Care: Improving Data Quality and Data Use in American Indian Communities
August 20-22, 2002; Seattle Washington

The National Diabetes Program, the Information Technology and Support Center, and the IHS Clinical Support Center (the accredited sponsor) will sponsor a national training conference in Seattle, Washington, at the Westin Hotel, August 20-22, 2002. The goal of this conference is to improve diabetes care in American Indian and Alaska Native communities by demonstrating ways to raise the quality and expand the use of individual patient care and population-based data. Program planning is underway. The format will include lectures, workshops, and abstract and poster presentation sessions. We invite all health professionals, epidemiologists, statisticians, information technology specialists, health records professionals, health administrators, diabetes coordinators, tribal leaders, Tribal Health Boards, health care outcomes researchers, and public policy officials working in American Indian communities and who are interested to save these dates. The final conference agenda, registration process, and a call for abstracts will be released in the near future.

Anticoagulation Clinic Training Program (ACC)
September 16-18, 2002, or November 4-6, 2002; Claremore, Oklahoma

Upon completion of this four-day certificate program, the health professional should be able to provide responsible anticoagulation therapy in a coordinated, systematic manner for the purpose of achieving positive outcomes that may improve patients' quality of life. For more information, contact LCDR Travis Watts or LT Mike Lee at the Claremore Comprehensive Health Care Facility Pharmacy; telephone (918) 342-6581. Registration materials are available at *www.claremoreihs.org*.

Geriatrics At Your Fingertips Available

The American Geriatric Society has donated a number of copies of the clinical handbook *Geriatrics at Your Fingertips*, 2000 edition, to us to distribute throughout the Indian health system. This is the same handbook that we distributed a couple of years ago with the assistance of the IHS Clinical Support Center.

It is a small, pocket sized clinical reference, geared to medical providers (nurses, physicians, PAs, advanced practice nurses) with lots of tables, charts, and formulary information to help in the care of the elder patient.

We want to put these directly in the hands of folks caring for elders. Let us know how many you need. E-mail, mail, or fax your request to the contact below. **Maximum five books per request**.

Rhonda Panteah
IHS Elder Care Initiative
PO Box 467
Zuni, New Mexico 87327
Fax: (505) 782-7405
E-mail: *rpanteah@abq.ihs.gov*

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THE IHS PRIMARY CARE PROVIDER

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Circulation: THE PROVIDER (ISSN 1063-4398) is distributed to more than 6000 health care providers working in the IHS and tribal health programs, to medical and nursing schools throughout the country, and to health professionals working with or interested in American Indian and Alaska Native health care. If you would like to receiver a copy, send your name, address, professional title, and place of employment to the address listed below.

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.ihs.gov

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