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Inpatient Medical Management of Acute Ethanol Withdrawal Syndromes: Benzodiazepines and Adjunctive Agents

Clayton J. Baker, MD, Department of Internal Medicine; and Jill O. Reidy, MD, Department of Family Medicine, both from the Tuba City Indian Medical Center, Tuba City, Arizona

Introduction

Alcohol abuse is a major cause of morbidity and mortality among Native Americans. Alcohol-related mortality rates among Native Americans have been reported at 4.3 times national averages.[1] Acute ethanol withdrawal syndromes are a common reason for admission to IHS hospitals.

Between 100 and 150 different medications have been reported as treatments of ethanol withdrawal.[2,3] However, many have little or no evidence to support their use. A survey of inpatient withdrawal treatment practices across the United States revealed wide variation in medications used, as well as frequent use of unproven or ineffective medications.[4] In this article we review the medications used in the inpatient treatment of acute ethanol withdrawal syndromes. First, we briefly review the ethanol withdrawal syndromes. Next we discuss the use of benzodiazepines, the first-line class of agents for treatment of ethanol withdrawal. Finally, we review the data on and indications for the use of adjunctive medications.

Ethanol Withdrawal Syndromes

The four acute ethanol withdrawal syndromes include: 1) minor ethanol withdrawal, 2) ethanol withdrawal seizures, 3) alcoholic hallucinosis, and 4) delirium tremens (DT). These syndromes may be seen individually, concurrently, or in succession in individual patients.

Minor ethanol withdrawal, characterized by autonomic nervous system dysfunction, anxiety, and tremor, can begin within one to two hours of cessation of drinking, sometimes with significant concentrations of alcohol still present in the blood. Ethanol withdrawal seizures usually occur 2 to 48 hours after drinking cessation. Alcoholic hallucinosis usually occurs from 12 to 48 hours after alcohol intake stops. Delirium tremens begins 48 hours or more after cessation of alcohol and can continue for up to a week.[5] DT is characterized by severe autonomic nervous system instability; auditory, visual, and tactile hallucinations; clouding of the sensorium; severe agitation; and even florid psychosis. Estimated mortal-

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ity rates for delirium tremens currently range from 2 to 10%.[6]

Patients suffering from acute ethanol withdrawal present multiple therapeutic challenges to medical and nursing staff. Due to anxiety, agitation, or psychosis, patients in active withdrawal may harm themselves as well as nursing and medical staff. Furthermore, they are at high risk for aspiration due to altered mental status, seizures, or sedation. Airway control is thus of particular concern, and endotracheal intubation is sometimes necessary. Many of these patients also suffer from concurrent medical illnesses, often the result of their ethanol abuse. These include gastrointestinal bleeding, pancreatitis, hepatitis, liver failure, and malnutrition, among others.

Benzodiazepines

Benzodiazepines are the treatment of choice for acute ethanol withdrawal syndromes. Benzodiazepines possess powerful sedative, anxiolytic, and anticonvulsant properties in the CNS. These drugs bind to the so-called benzodiazepine receptor that is part of the same macromolecular complex as the $GABA_A$ receptor.[7] Their CNS effects appear to be mediated via the inhibitory $GABA_A$ receptor in a manner similar to that of ethanol.

Multiple prospective studies using different benzodiazepines have consistently shown that benzodiazepines effectively reduce signs and symptoms of ethanol withdrawal, incidence of withdrawal seizures, and delirium.[8] Two recent meta-analyses of studies comparing benzodiazepines with other medications in the treatment of ethanol withdrawal concluded that benzodiazepines compare favorably to other available treatments for ethanol withdrawal and are recommended as first line therapy.[8,9]

Studies comparing different benzodiazepines in the treatment of withdrawal show no clearly superior agent within the class.[9] Long-acting agents such as chlordiazepoxide and diazepam may prevent seizures more effectively and may provide a smoother course of withdrawal.[2] The shorter-acting agents lorazepam and oxazepam may be less likely to cause prolonged or excessive sedation in patients with severe hepatic impairment, as these drugs are metabolized primarily by the kidney.[5] It is important to know the relative dose equivalents of the most commonly used benzodiazepines. A 25mg dose of chlordiazepoxide corresponds to 5mg of diazepam, 1mg of lorazepam, or 15mg of oxazepam.[10]

Adequate dosage and frequency of medication matter more than which benzodiazepine is chosen. Oral administration is reasonable when this route can be used reliably. Intravenous administration should be used without hesitation as needed. Chronic users of alcohol often develop significant cross-tolerance to benzodiazepines, and large or even massive doses of benzodiazepines may be required to control withdrawal. Dosage should be individualized and increased as needed to control symptoms and signs of withdrawal. A quiet, relaxed but awake, or easily arousable state is the goal. Careful patient monitoring for excess sedation and respiratory depression is required.

The revised Clinical Institute Withdrawal Assessment for Alcohol (CIWA-Ar) scale is a widely studied, well-validated scale that measures ten symptoms to quantify severity of ethanol withdrawal, with scores ranging from 0 (no symptoms) to 67. High CIWA-Ar scores have been shown to correlate with greater likelihood of progression to seizures and other complications in untreated patients.[6] Assessment using the CIWA-Ar scale can be completed in less than two minutes by an experienced user, and can be repeated as needed for reassessment throughout the admission.[11] It can be used to determine initial severity of withdrawal, response to treatment, and the need for additional medication.

One randomized controlled trial showed that inpatients in ethanol withdrawal who received benzodiazepines only on an as-needed basis (for CIWA-Ar scores 8 or higher) had shorter hospital stays and required less total medication than those treated on a fixed-dosing schedule.[10] However, this study excluded patients with a history of withdrawal seizures or with concurrent medical illness. Low-risk patients (for example, younger patients with no concurrent illness or history of withdrawal seizures or DT) may benefit from this type of symptom-triggered dosing schedule. For example, in one regimen, chlordiazepoxide 50-100 mg (or equivalent dose of diazepam or lorazepam) is given hourly for CIWA-Ar scores of 8 to 10 or more, with the scale repeated one hour after each dose to assess response.[8] Authorities differ slightly on the exact CIWA-Ar score that should prompt treatment. The developers of the scale recommend 10 as a minimum threshold.[11] Dosing and frequency of medications should be adjusted as the patient's symptoms require.

High-risk patients (including older patients, patients with concurrent illness, and patients with history of major withdrawal, seizures, or DT) should receive fixed-schedule or front-loaded therapy, with additional medication available at frequent intervals as symptoms warrant. One example of an initial fixed-dosing schedule for a high-risk patient would be

chlordiazepoxide 50-100 mg four times daily for one day, then decreased to 25-50 mg doses on subsequent days, with additional chlordiazepoxide 25-100 mg every 1-2 hours as needed.[2] Diazepam, lorazepam or oxazepam may be substituted at equivalent doses using the dose equivalents listed above or in dosing equivalency charts that are widely available. Again, the CIWA-Ar scale should be repeated after each dose to assess response and need for additional medication. Patients actively withdrawing on admission may require larger or more frequent doses to control withdrawal.

The CIWA-Ar scale is not copyrighted and may be used freely.[11] It can be found online at www.asam.org.

Barbiturates

Phenobarbital has been used as first-line therapy for acute alcohol withdrawal in Europe.[12] It is the second most commonly used drug for ethanol withdrawal in the USA, after benzodiazepines.[2] Phenobarbital is a barbiturate sedative-anticonvulsant that has interactions at the GABA-receptor complex and which is cross-tolerant with ethanol.[12] Other features that suggest its potential use are its rapid onset of action, long half-life, administration via multiple routes, and low cost. There is one controlled study that compared a barbiturate, barbital, with diazepam for acute ethanol withdrawal that showed both to be effective.[2] However, phenobarbital, like other barbiturates, has an inferior safety profile compared with benzodiazepines. It may produce oversedation, respiratory depression, and induction of hepatic enzymes, especially when used at high doses, as are often required in acute ethanol withdrawal.[12] There are inadequate prospective controlled studies to support its use over benzodiazepines, although clinical experience suggests it may be an acceptable alternative in certain settings such as alcohol withdrawal in pregnant women,[2] or in patients who cannot be given benzodiazepines.

Chlormethiazole

Chlormethiazole is a hypnotic-sedative medication that has been widely used for decades in Europe as a first-line treatment for ethanol withdrawal. Its efficacy has been shown to be similar to chlordiazepoxide and superior to placebo in two small randomized trials. However, it has never received FDA approval for use in the USA due to concerns regarding potentially lethal respiratory depression when combined with alcohol, especially when used in the outpatient setting.[3]

Propofol

Propofol (2,6 diisopropylphenol) is an intravenous medication used frequently for initiation and maintenance of general anesthesia. It has a rapid onset of action and a short duration of action. It is administered by bolus injection followed by continuous infusion which is titrated to desired effect (sedation or anesthesia).[13] Propofol acts by potentiating GABA receptors, much like benzodiazepines. Unlike benzodiazepines, but like ethanol, propofol also inhibits the NMDA

subtype of glutamate receptors. These receptor effects suggest that propofol may have uses in cases of ethanol withdrawal that are refractory to benzodiazepines.[14]

Case reports and case series have described successful use of propofol infusion to treat delirium tremens refractory to high doses of benzodiazepines.[14,15] We reviewed a total of five such cases. In one of these cases, it was undecided whether the diagnosis was delirium tremens or alcohol-induced status epilepticus.[16,17] In each case, large or massive doses of intravenous benzodiazepines failed to control severe agitation. Propofol therapy with maximum infusion rates ranging from 40 to 90 mcg/kg/hr and lasting from 27 hours to 11 days resulted in successful resolution of DT in all cases.[14,15] All but one of these patients were intubated at the time propofol treatment was begun.

While further study is certainly warranted, some anecdotal evidence supports propofol use as a second line agent for severe delirium tremens refractory to high dose benzodiazepines, particularly in intubated patients. Some hospitals are currently developing protocols for this purpose.[18] Physicians considering the use of propofol for ethanol withdrawal should consult an anesthesiologist or another physician with experience using propofol. They should also consider the likely need to resume benzodiazepine therapy following discontinuation of propofol. It should be stressed that no controlled trials currently exist to support the use of propofol for this indication.

Vitamins and Minerals

Those suffering from chronic alcohol abuse commonly are deficient in a number of vitamins and minerals, most notably thiamine (vitamin B1) and magnesium. Replenishment of these nutrients has long been a part of standard treatment of acute ethanol withdrawal.

Thiamine administration has not been shown to impact

the course of ethanol withdrawal.[2] Chronic alcoholics are often deficient in thiamine, however, and are at risk for development of Wernicke's encephalopathy or Korsakoff's psychosis. These devastating and potentially lethal syndromes can be averted by the immediate parenteral administration of thiamine (100 mg) to all patients upon diagnosis of acute ethanol withdrawal or chronic alcoholism. Subsequent oral thiamine (100 mg daily) should be given to replenish body stores.[19] Thiamine should be given prior to any intravenous glucose infusions as such infusions can precipitate Wernicke's encephalopathy in previously asymptomatic patients who are thiamine deficient.[20]

One randomized, double-blind study of 100 patients treated for ethanol withdrawal with oral chlordiazepoxide showed no statistically significant difference in the course of withdrawal between patients treated with intramuscular magnesium versus placebo.[21] However, hypomagnesemia is known to precipitate seizures and cardiac arrhythmias. Additionally, alcoholics are frequently hypokalemic, and hypomagnesemia can contribute to refractory hypokalemia.[19] Magnesium replenishment presents little risk in patients with normal renal function, and is inexpensive. For these reasons, we recommend routine replenishment of magnesium in patients treated for acute ethanol withdrawal who are hypomagnesemic and who possess normal renal function. Potassium should be replenished as indicated, as with any other patient.

Neuroleptics

Among the major classes of neuroleptic medications, the phenothiazines, such as chlorpromazine (Thorazine) and the butyrophenones such as haloperidol (Haldol) have been studied in ethanol withdrawal. Benzodiazepines have been shown to be significantly more effective than phenothiazines in reducing delirium in ethanol withdrawal, and neuroleptic therapy has been shown to result in a significantly increased incidence of seizures compared with benzodiazepines, and a trend toward increased seizures compared with placebo.[8]

Chlorpromazine (Thorazine) and other phenothiazines lower the seizure threshold more than other neuroleptics, and therefore should not be used in the treatment of acute ethanol withdrawal.[5] Some authorities recommend the use of butyrophenones as adjunctive agents to benzodiazepines in cases of severe agitation and hallucinosis, as the epileptigenic effect of this class of agents is felt to be smaller.[2]

Anticonvulsants

Phenytoin has been studied in the prevention and treatment of alcohol withdrawal seizures and has no proven benefit over placebo, except in select instances in patients with underlying epilepsy or head trauma.[6] Despite its lack of demonstrated efficacy, phenytoin continues to be used to treat withdrawal seizures. A nationwide survey of treatment practices estimated its use in 10% of inpatients treated for withdrawal.[4]

Carbamazepine is an anticonvulsant that is used in low doses for the treatment of mild to moderate withdrawal, with effectiveness comparable to oxazepam and greater than placebo.[2] However, no evidence exists at present showing that carbamazepine prevents delirium in ethanol withdrawal.[2] Side effects such as nausea, ataxia, and hepatotoxicity may limit its use at higher doses required for moderate to severe withdrawal.[2] Carbamazepine cannot be given intravenously. For these reasons, it is not a recommended agent in the inpatient treatment of acute ethanol withdrawal.

Valproate is an effective anticonvulsant that has also been used as a mood stabilizer and an anxiolytic. The mechanism of action of valproate is not well understood but has been shown to indirectly affect GABA receptors.[22] This suggests a potential role in the treatment of alcohol withdrawal. There are few studies that investigate the role of valproate in the treatment of alcohol withdrawal. These studies are limited because they either were not placebo-controlled, or the valproate treatment groups also received benzodiazepines.[22] Currently, there is no firm evidence supporting the use of valproate in the treatment of acute alcohol withdrawal.

Gabapentin was used in one small German series of four ethanol withdrawal patients, who were given scheduled gabapentin as well as chlormethiazole on an as-needed basis. When treated with gabapentin, the patients required significantly less chlormethiazole to control their withdrawal than they had required during previous withdrawal episodes treated with chlormethiazole alone.[23] While by no means conclusive, this series suggests that further study of gabapentin in ethanol withdrawal may be warranted.

Beta-Blockers

Multiple studies have demonstrated that beta-blockers reduce some signs and symptoms of ethanol withdrawal, particularly those related to excessive sympathetic nervous system activity.[2,8] However, hallucinations, psychosis, and an acute reversible delirium syndrome are all established adverse effects of beta-blockers.[7] One study described an increased incidence of delirium in withdrawing patients treated with propranolol.[8] Concern also exists that beta-blockers may mask the severity of ethanol withdrawal, as evidenced by a case report of a patient on outpatient propranolol therapy. The patient presented in delirium tremens but the diagnosis was delayed due to the propranolol's sympatholytic effects.[24] Finally, beta-blockers have no antiepileptic effects. For these reasons, beta-blockers should be considered adjunctive medications to benzodiazepines useful only for specific indications. Their use is recommended particularly in cases of withdrawal complicated by active coronary artery disease.[2,8]

Clonidine

Clonidine, a centrally-acting $\alpha 2$-adrenergic agonist antihypertensive, has been shown to be effective in the treatment

of opiate withdrawal, and is recommended as a second-line agent by the US Public Health Service for smoking cessation.[7] Clonidine has been shown in one study to be superior to placebo and comparable to chlordiazepoxide in reducing signs and symptoms of acute ethanol withdrawal.[2] Similar to beta-blockers, clonidine has not been shown to reduce the incidence of seizures or delirium,[8] and its listed side effects include delirium and hallucinations.[7] Clonidine has been recommended as an adjunctive medication in the treatment of acute ethanol withdrawal in cases complicated by extreme hypertension or concurrent opiate withdrawal.[2]

Ethanol

Ethanol itself is commonly used by alcoholics to self-treat the symptoms of ethanol withdrawal. It is toxic to multiple organ systems, including the liver and gastrointestinal tract, central nervous system, and hematopoetic systems, among others, and therefore requires close monitoring of blood levels if given as a therapeutic agent. Multiple case reports have been published describing its use to treat ethanol withdrawal,[8] but only one controlled study has been performed, in which ethanol failed to show efficacy against seizures or delirium tremens.[2] Given the other agents available, there is no sound rationale for the use of ethanol in the inpatient treatment of acute ethanol withdrawal.

Conclusions

Benzodiazepines remain the clear first-line agents for acute ethanol withdrawal. Risk stratification of patients into high and low risk groups is recommended as optimal dosing schedules differ between the two groups. High-risk patients or those actively withdrawing on admission should generally receive fixed-schedule or front-loaded therapy, with additional medication available as symptoms warrant. Lower-risk patients may benefit from a symptom-triggered dosing schedule. The CIWA-Ar scale is a useful tool and should be used at regular intervals to assess both the severity of withdrawal and the need for additional doses of medication.

Thiamine should be given to all alcoholics on admission, and electrolyte derangements should be corrected if present. Several other medications may be useful as second-line or adjunctive agents to benzodiazepines for certain specific indications. These include phenobarbital, propofol, haloperidol, beta-blockers, and clonidine.

Good supportive care is very important. A compassionate but firm nursing approach is invaluable, as are close monitoring and frequent patient reassessment. A quiet, calm environment is preferable. Judicious use of physical restraints is sometimes necessary to protect the patient and staff. Our facility has found newer restraint devices such as Velcro wraps to be useful in certain very agitated patients in addition to the more common "four point" limb restraints.

Acute ethanol withdrawal syndromes represent a major challenge to IHS physicians, nurses, and hospitals. Full knowledge of the available pharmacology and its proper use will aid in the successful treatment of these patients. While not discussed here, effective counseling after discharge to promote long-term ethanol cessation is also a vital component of successful treatment. This continues to be a particular challenge on the reservation. □

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In Memory of the First Director of the Indian Health Service

The Indian Health Service and Indian country mourn the passing of the first Director of the Indian Health Service, Dr. James Ray Shaw. Dr. Shaw passed away at the age of 94 on April 4, 2002, in Tucson, Arizona.

Largely as a result of his efforts while serving with the Division of Indian Health at the Bureau of Indian Affairs, the agency was transferred in 1955 to the U.S. Public Health Service in the Department of Health, Education, and Welfare. Dr. Shaw became the first Assistant Surgeon General of the U.S. Public Health Service as Chief, Division of Indian Health. The dramatic improvements in health status of American Indian and Alaska Native people following his appointment resulted from public and individual health programs developed and implemented under his leadership. He also proposed a comprehensive sanitation program for Indian country, which in turn led directly to the passage of the Indian Sanitation Facilities Act (Public Law 86-121). This Act included a major emphasis on bringing tribal governments directly into the process for developing sanitation systems for their communities.

He recruited an extraordinary number of professionals with public health expertise, which allowed a wide scope of health issues to be addressed within a short period of time. He established maternal and child health as a major initiative and also began data collection efforts as a way to help others begin to understand the status of Indian health.

Generations of Indian people were served by Dr. Shaw's emphasis on maternal and child health. He pioneered efforts to increase prenatal care with a health team approach that included community and public health nurses. In helping Indian people, Dr. Shaw also helped people around the world. His careful approach to allowing good clinical drug research for tuberculosis and trachoma to be conducted among the American Indian and Alaska Native communities led to the discovery of using isoniazid for treating tuberculosis. The research also led to the use of sulfa drugs for trachoma, preventing blindness in many people. This research is still cited for its design and the scope of its impact on the health of Indian people and people worldwide.

He served until his retirement from the Commissioned Corps in 1962, at which time he embarked on a second career at the University of Arizona and helped establish their new medical school.

During his seven years as the first IHS Director, Dr. Shaw's commitment and remarkable achievements in quality health services, medicine, and sanitation facilities left a legacy of improved health for American Indian and Alaska Native people.

Share your stories and photos about Dr. Shaw; visit Dr. Shaw's biography page on the IHS website at: *http://www.ihs.gov/PublicInfo/PublicAffairs/Bios/PreviousDirectors/DirectorList.asp* and share your memories with others. □

The Medicare Medical Nutrition Therapy Benefit: A First Step Guide for I/T/U Health Care Facilities

Tammy L. Brown, RD, MPH, BC-ADM, CDE, IHS NDP Nutrition Consultant, Albuquerque, New Mexico; Sandra Lahi, RHIA, ITSC Management and Program Analyst, Albuquerque, New Mexico; Melanie Sipe, RD, CDE, Claremore Model Diabetes Program, Claremore, Oklahoma; Leeanna Travis, MS, MA, RD, CDE, Director, IHS Nutrition & Dietetics Training Program, Santa Fe, New Mexico; Diane Phillips, RD, Santa Fe Indian Health Service Hospital Dietitian, Santa Fe, New Mexico; Lorraine Valdez, BSN, MPA, CDE, IHS NDP Nurse Consultant, Albuquerque, New Mexico; and Brenda Broussard, RD, MPH, MBA CDE, Health Care Consultant, Albuquerque, New Mexico

Introduction

The beginning of the 21st Century has marked some important milestones in the prevention and treatment of diabetes. For patients, health care professionals and paraprofessionals, and health care administrators alike, the next decade promises to be an exciting and challenging time. In the past few months we have learned that type 2 diabetes can be prevented or delayed. This was the conclusion of the major clinical trial by the National Institutes of Health (NIH) called the Diabetes Prevention Program (DPP) published in the New England Journal of Medicine, February 2002 (Diabetes Prevention Research Group 2002). But, there is more great news: beginning January 1, 2002, Medical Nutrition Therapy (MNT) for diabetes and kidney disease became a covered service for beneficiaries under Medicare Part B, when the patient is referred by a physician. This is a major step in Federal health care policy.

In the health care environment today, every hospital and clinical service must rely on third party reimbursement for survival. Medical professionals have long recognized the importance of the role that nutrition plays in the prevention and treatment of disease. But, unfortunately, MNT services provided by dietitians have been limited. This is because the cost of nutrition services has had to be absorbed by the medical facility. The decision by Congress to include MNT for diabetes and kidney disease as a Medicare Part B benefit allows Indian Health Service, tribal, and urban (I/T/U) health care facilities one more way to generate revenue. With increased revenues for MNT services, I/T/U health care facilities can, over time, begin to meet a critical unmet need for nutrition services by expanding its availability. In turn, this increases patients' access to the uniquely qualified skills of registered dietitians.

Significant evidence developed during the past two decades documents the effectiveness of MNT in acute and chronic disease management as well as in disease prevention and wellness. Diabetes is a chronic, progressive disease that frequently requires lifestyle changes both in nutrition and physical activity. We have learned through the course of time that MNT is more than handing out a diet booklet or tear-off sheet. Studies like the Diabetes Control and Complications Trial (DCCT) and the United Kingdom Prospective Diabetes Study (UKPDS) demonstrated that MNT is an essential component of successful diabetes management and that dietitians play a key role in clinical decision-making, along with the patient, family, and other clinical providers. In 1935, Dr Elliot P. Joslin wrote, "I look upon the diabetic as a charioteer and his chariot as drawn by three steeds named Diet, Insulin and Exercise. It takes will to drive one horse, intelligence to manage two, but a man must be a very good teamster who can get all three to pull together" (Powers, MA, 1996). Little did Dr. Joslin know that teamwork and empowering patients would not only hold true in the clinical management of diabetes, but in the primary prevention of type 2 diabetes as well.

Recently, evidence supports that MNT not only improves patient outcomes, but, when provided by a registered dietitian, is also cost effective, as demonstrated in the National Academy of Sciences' Institute of Medicine (IOM) Report published in 1999 and in the Department of Defenses' (DoD) Lewin Group Report published in 1998. (For more detailed information on "Cost and Outcome Effectiveness of MNT" see the references at the end of this article).

The dietitians at Santa Fe Indian Hospital (SFIH) have become Medicare MNT providers. There are a few tips they wanted to share as a result of their experiences. Work with your business office to be sure that provider applications are completed, documentation is correct, and billing is maximized. Include MNT reimbursement as a standard agenda item at your local or regional meetings with fellow dietitians. Work together to streamline documentation and educate others. The SFIH dietitians agreed that although establishing policy and procedure for MNT reimbursement for the first time may seem daunting, once it is in place, you'll see the pay-off.

To reap the benefits of this new Medicare ruling, we must be active in seeking reimbursement. This begins with a clear

understanding of the Medicare Part B MNT benefit, which has been explained in a question and answer format below.

Who is eligible for the Medicare MNT coverage (qualifying diagnosis)?

The Medicare Part B beneficiaries who are eligible for this service include persons with type 1, type 2 or gestational diabetes. Individuals who have chronic renal insufficiency (pre-renal dialysis); who have end-stage renal disease before dialysis has been initiated; or who are kidney transplant patients seen on an outpatient basis, 6 to 36 months post-transplant also qualify for this benefit.

Who is eligible to become a Medicare Provider of the MNT benefit (professional standards)?

For Medicare patients to receive this benefit, a registered dietitian (RD) or qualified nutrition professional must provide the MNT services. This means the dietitian or nutritionist must be licensed or certified in the state as of December 21, 2000. On or after December 22, 2000, the dietitian or nutritionist must have a bachelor's degree or higher granted by a college or university with an accredited program in nutrition or dietetics, complete a supervised dietetic internship, and be licensed or certified in the state where the services are provided (IHS Federal employees must be licensed or certified in any state). A "Registered Dietitian" credentialed by the Commission on Dietetics Registration provides proof that the individual has met the education and experience requirements.

What is MNT and what does the MNT benefit consist of?

Medical Nutrition therapy (MNT) is defined by Centers for Medicare and Medicaid Services (CMS) as "nutritional diagnostic, therapy and counseling services provided by a registered dietitian or nutrition professional for the purpose of managing disease."

The benefit consists of an initial visit for a comprehensive assessment of the patient's overall nutrition status, medical data and diet history. Subsequent visits are for interventions, reassessments, and follow-up interventions to prescribe an individualized course of treatment as needed. This process helps to facilitate adherence to the nutrition care plan.

What are the conditions for coverage?

- A written referral indicating the qualifying diagnosis must come from the physician or physician specialist who is treating the patient.
- The services can be provided either on an individual or group basis.
- The number of hours covered in an episode of care cannot be exceeded (see coverage defined below).
- Effective after October 2002, Medicare will cover both MNT and Diabetes Self-Management Training (DSMT) benefit (see the Table 1 on pages 126-129 for an explanation of DSMT benefit) in the initial and subsequent years without decreasing either benefit as long as the referring physician determines that both benefits are medically necessary.

What are the limitations to coverage?

- MNT services are not reimbursable for beneficiaries receiving maintenance dialysis.
- Through October 2002 the MNT and DSMT Medicare Part B benefits must be fully coordinated. This means a beneficiary cannot receive MNT if they have received initial Diabetes Self-management training (DSMT) within the last 12 months, unless the referring physician, as a result of a change in diagnosis or medical condition, has documented the need for reassessment and additional therapy; or the beneficiary receiving DSMT is subsequently diagnosed with renal disease.
- If a beneficiary diagnosed with diabetes has been referred for both follow-up DSMT and MNT services, the number of hours the beneficiary may receive is limited to the number of hours covered under either follow-up DSMT or MNT services annually, whichever is greater.
- On or after October 2002, when the DSMT and MNT benefits are maximized, one limitation will be that DSMT and MNT services cannot be provided on the same date so that beneficiaries may receive the effect of reinforcement over a period of time.

How does CMS define an "initial" vs. "follow-up" visit, and what is an "Episode of Care"?

An "Initial" visit is used for patients whom the MNT provider has never seen or has not seen in the last three years. The MNT provider or physician uses a "follow-Up" visit for patients whom have already been seen. CMS defines an "Episode of Care" as a continuous 12-month period beginning with the initial assessment.

What is the duration and frequency of visits allowed under the MNT benefit?

In general, the initial diabetes and kidney disease MNT benefits each allow up to three hours during the first year that education is provided and up to two hours in follow-up years as outlined below in Tables 2 and 3.

Table 2. Basic Coverage for Diabetes

First Year of MNT Benefit	American Dietetic Association
1 Visit	60 – 90 minutes
2 Visit	30 – 45 minutes
3 Visit	30 – 45 minutes
4 Visit	30 – 45 minutes
Subsequent Years of MNT Benefit	
Per Year	1 – 2 visits

Table 3. Basic Coverage for Kidney Disease

First Year of MNT Benefit	American Dietetic Association
1 Visit	60 – 90 minutes
2 Visit	45 – 60 minutes
3 Visit	30 – 45 minutes
4 Visit	30 – 45 minutes
Subsequent Years of MNT Benefit	
Per Year	1 – 2 visits

Source: Medicare Policy Coverage Decisions: http://hcfa.gov/coverage/8b3-ggg2.htm

Additional Hours of Coverage. There is flexibility in the MNT benefit allowing the treating physician to determine the exact amount of service that the patient needs. If there is a change in diagnosis, medical condition, or treatment regimen related to diabetes or renal disease (see examples listed below) that requires a change in MNT during an episode of care, additional hours of coverage will be allowed with an additional written referral.

Examples include, but are not limited to:

(For Diabetes)

- Changing from oral medication to insulin
- Gestational diabetes requiring frequent dietary modifications
- Diabetic complication that requires tighter dietary control

(For Kidney Disease)

- Clinically significant change in renal efficiency
- Patient demonstrating lack of understanding of the renal diet
- Patient experiencing malnutrition
- Patient has completed the DSMT demonstrating a need for MNT to address their renal condition in the same episode of care

What are the Current Procedural Codes (CPT) used for billing MNT services?

Payment for MNT will be made under the following Medicare Current Procedural (CPT) codes, effective January 1, 2002:

These CPT codes are the language that practitioners use to communicate to payers what procedures were performed during the patient visit. The CPT Code 97802 can only be used once in a 12-month period ("episode of care). All subsequent reassessment and interventions are to be billed under the CPT code 97803. This code is also used when the referring physician determines that additional visits are necessary as a result of a change in the patient's diagnosis, medical condition, or treatment regimen. CPT code 97804 is to be used for all group visits, initial and follow-up.

97802	Medical Nutrition Therapy; initial assessment and intervention, individual, face-to-face with the patient, each 15 minutes
97803	Re-assessment and intervention, individual, face-to-face with the patient, each 15 minutes
97804	Group (2 or more individual(s), each 30 minutes

The codes are time-based, and they differentiate between initial and follow-up visits and between individual and group encounters. The MNT provider can bill for multiple units based on the medical complexity of the patient. It is important that the documentation in the medical record support the medical necessity of the time. For example, a patient with diabetes complicated by kidney disease will need more time for assessment and intervention than the patient who has well-controlled diabetes and no complications. Also important to note is that the MNT provider can only bill for the time spent face-to-face with the patient. This means that (s)he cannot bill for preparation time or post-session documentation time.

Can other healthcare professionals use the MNT codes?

No. MNT is defined as a service provided by registered dietitians/qualified nutrition professionals. The professional standards that were described above for RDs/qualified nutrition professionals must be met to become a Medicare Provider to bill for the MNT services. Physicians who provide nutrition services have been directed to use E/M or Preventive Medicine CPT codes.

How do dietitians/qualified nutrition professionals become Medicare Providers?

The outpatient medical facility-billing department will bill Medicare on behalf of the RD. First the RD must enroll to become recognized Medicare provider. Upon enrollment, the RD will receive a Medicare provider identification number (PIN).

The RDs will complete the "Medicare Federal Health Care Provider/Supplier Enrollment Application" (CMS form 8551) to become a Medicare provider. This application must include all supporting documentation such as RD registration number and state license or certification. (S)he then completes a CMS form 855R, "Medicare Federal Care Reassignment of Benefits Application," to reassign Medicare payment back to the outpatient medical facility or facilities in which the RD/nutrition professional is providing services. These forms may be obtained from your own billing department, your local carrier, or on the CMS website at *www.cms.gov/medicare/enrollment.*

In what medical setting can the MNT services be provided?

In the Indian health system, reimbursement for the Medicare Part B MNT services can occur in hospital outpatient departments, freestanding health clinics, Federally Qualified Health Centers (FQHC), Rural Health Clinics (RHC), and home health settings as long as the registered dietitian/qualified nutrition professional has obtained provider status with the CMS Medicare program. MNT services under Medicare Part B are not covered when delivered to patients during an inpatient stay in a hospital or skilled nursing facility.

Medicare coverage for DSMT services is available only when furnished by a certified program (for information on how you can become a certified program, call the IHS National Diabetes Program Office, (505) 248-4182, for the IHS Integrated Diabetes Education and Clinical Standards Recognition Program Manual, or visit our web page at *www.ihs.gov/medicalprograms/diabetes*) that meets certain quality standards. A second condition of coverage is that these services are reimbursable to outpatient medical facilities that provide and bill for services on a fee-for-service basis. This means that, at this time, FQHC and RHC are excluded from participating.

When can the dietitian/nutrition professional start billing for MNT services?

The dietitian must submit their completed Medicare Provider enrollment form, specifying the date that (s)he will start MNT services from their practice location. MNT services will not be reimbursable before the date indicated on this enrollment form. The dietitian may provide MNT services to Medicare beneficiaries who have diabetes and/or kidney disease before they receive their PIN number, but must hold the claims until the PIN number is received (claims held beyond 12-months will be assessed a 10% penalty).

How do dietitians/qualified nutrition professionals bill for services?

For Medicare Part B MNT services, the hospital or ambulatory care clinic billing and collection's department will submit claims to the Medicare carrier on behalf of the RD Medicare provider (refer to Medicare Carriers Manual). The hospital or ambulatory care clinic is considered the Medicare supplier while the RD is considered the provider. The RD Medicare provider reassigns the Medicare reimbursement back to the medical facility by completing CMS form 855R, "Federal Health Care Reassignment of Benefits Application."

To become a supplier, the medical facility must complete CMS form 855B, "Application for Health Care Suppliers that will Bill Medicare Carriers." When completing this form, the supplier will list all the individual RD providers as a "group" for whom they will be billing. The supplier will receive a Medicare Part B "billing number" which is to be used for all claims sent on behalf of the RD or RD group.

These services are billed as professional services on the HCFA 1500 form. Medicare will not accept non-standard claims such as a "Superbill" (although it can be attached to the HCFA 1500 form to support your claim if submitted in paper form). Claims may also be submitted electronically. The RD Medicare provider number, the referring physician Medicare provider number, and the facility Medicare billing number must all appear on the HCFA 1500 claim form.

What is the Medicare Part B MNT payment rate?

Payment to the facility for MNT services will be made at either 80% of the lesser of the actual charge for the services (CMS applies a geographical adjustment factor (GAF) to the MNT rates in regions of the country) or 80 % of "85% of the amount determined under the physician fee schedule for the same services if a physician had furnished the services." Payment will NOT be made under the Medicare Part A OMB Rate.

RDs who become Medicare providers enter into an agreement with CMS to accept "assignment," which means they must accept the approved amount for the Medicare MNT benefit for all services provided to Medicare beneficiaries. CMS has established payment values for the MNT CPT codes. This payment chart is posted on the American Dietetic Association's web page at www.eatright.org > Policy & Advocacy > Medicare MNT Benefit Provider Information > MNT Payment Schedule 2002 by Geographic Region.

What is the difference between the MNT Benefit and MNT as one component of the DSMT benefit?

Keep in mind that the Medicare Part B MNT benefit is a separate benefit from the Medicare Part B Outpatient Diabetes Self-Management Training (DSMT) Benefit. In the DSMT benefit, the RD is one member of a multi-disciplinary diabetes team, and MNT is one component of the DSMT curriculum.

The curriculum of a DSMT program and the MNT protocols were compared by CMS and were found to cover similar topics in the initial assessment and training, although MNT assessment was more in-depth. A major difference between the two benefits relates to the individual nature of the MNT benefit. During MNT, the provider can relate the individual meal plan to management of the disease process. Also, the MNT protocols have specific requirements for follow-up and feedback, which are not outlined in the DSMT program curriculum. In the DSMT benefit, Medicare Part B beneficiaries are allowed up to two hours of follow-up DSMT each year, but these sessions would not necessarily include nutrition therapy.

How do the diabetes MNT benefit and the DSMT benefit affect each other?

Until recently there were limitations to coverage for beneficiaries who had diabetes and kidney disease. On February 28, 2002, the Center for Medicare & Medicaid Services (CMS) significantly expanded coverage of MNT for Medicare beneficiaries with diabetes and renal disease, allowing patients to receive the new MNT benefit while also getting the DSMT benefit. This new National Coverage Determination (NCD) will not become effective until after October 2002. The decision to maximize these two benefits is an important one, in that it recognizes that these two benefits serve different purposes and that it is more beneficial to beneficiaries, under certain conditions, to receive both benefits at the same time. The individual sessions provided under the MNT benefit have the advantage of providing more intensive individualized attention and increased opportunity for reinforcement of the dietary plan over a period of time to facilitate understanding and adherence.

The coordination of DSMT and MNT benefits are summarized below:

1. With the initial DSMT benefit, CMS will allow beneficiaries to get the complete 10 hours of the initial DSMT benefit (including nutrition as a required content area) and the three hours of the MNT for diabetes within the same year. The only stipulation is that the beneficiary cannot receive both services on the same day.
2. With the follow-up DSMT and MNT benefits, CMS will allow up to two hours DSMT and two hours of MNT annually in follow-up years.

What steps should the RD/qualified nutrition professional take now to successfully obtain reimbursement for MNT services through the Medicare Part B MNT benefit?

- Educate yourself about reimbursement and procedures for coding MNT (see contacts below).
- Apply for Medicare Provider PIN using CMS Form 855I.
- Complete CMS form 855R to reassign the Medicare reimbursement back to your medical facility.
- Communicate regularly with your local billing department to make sure the MNT CPT codes are in the billing system and the coders are familiar with these codes.
- Develop a standard MNT referral form.
- Create a "Dietitian Superbill" to help facilitate accurate coding and billing of services.
- Educate the medical providers about the MNT Medicare Part B benefit and referral process.
- Establish MNT protocols for diabetes and kidney disease. You can use the "ADA MNT Evidence-based Guides for Practice" as a framework and adapt to your medical setting.
- Document outcome effectiveness of Medical Nutrition therapy.
- Keep excellent patient records to help you document the outcome effectiveness of MNT.
- Provide timely reports to the referral physician.
- Work with your billing and Information Technology Services Center (ITSC) to develop a method of tracking claims and reimbursements.

Where can I go to get more information on the Medicare Part B MNT Benefit?

Contact:

- Your Local Billing Office.
- Your local carrier (Trailblazer) for Medicare Part B.
- IHS National Diabetes Program (NDP): (505) 248-4182 (ask for Tammy Brown); e-mail *tammy.brown@mail.ihs.gov; or visit the IHS NDP web page at www.ihs.gov > Medical and Professional Programs > Diabetes > Nutrition.*
- Your IHS Area Nutrition Contacts (call Jean Charles-Azure for the name of IHS Area Nutrition Contact in your Area at (301) 443-0576 or e-mail her at *jcharles@hqe.ihs.gov.*
- Your Model Diabetes Program Nutritionist and/or Area Diabetes Consultant both of whom can be found on the IHS NDP Web page at *www.ihs.gov/medicalprograms/diabetes.*

Other Sources of Information:

- Contact your local state/affiliate reimbursement American Dietetic Association (ADtA) representative. Use the ADA's Online Directory at *www.eatright.com/mem/login.htm > Government & Legal Affairs > Affiliate or DPG Reimbursement representative.*
- Contact the Centers for Medicare and Medicaid Services at *www.hcfa.gov.*
- Visit the ADtA Policy & Advocacy web page at *www.eatright.org > Policy & Advocacy > Medicare MNT Benefit Provider Information.*
- Visit the American Association of Diabetes Educators Government Relations web page at *www.aadenet.org*
- Contact the ADtA for "American Dietetic Association MNT Evidence-Based Guides for Practice: Nutrition Practice Guidelines for Type 1 and Type 2 Diabetes Mellitus" at *www.eatright.org > market place > new catalog item.*

Conclusion

Medical Nutrition Therapy provided by registered dietitians/qualified nutrition professionals is cost effective and improves quality of life. This has been demonstrated in many studies, such as the DCCT, UKPDS, the Lewin Group Study commissioned by the DoD, and the Academy of Sciencesí IOM Study requested by Congress in the Balanced Budget Act of 1997. The cost savings of glycemic control and prevention of diabetes complications far outweigh the cost of providing MNT services. Seeking reimbursement for MNT will have far reaching benefits for tribes and tribal communities by increasing access to nutrition services. Increased access not only benefits those individuals and families who have diabetes, but expands opportunities for lifestyle interventions for the primary prevention of diabetes and other chronic diseases.

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(Source: www.eatright.org/gov/biblio.html)

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Table 1. Medicare Part A & B Coverage and Billing Requirements for Medical Nutrition Therapy (MNT) and Diabetic Self-Management Training (DSMT)

Medicare Benefits and CMS Coverage Guidelines	MNT Medical Nutrition Therapy	DSMT Diabetes Self-Management Training
Statute	Section 105 of the Benefits Improvement and Protection (BIPA) Act of 2000 permits Medicare coverage of MNT services when furnished by a registered dietitian or nutrition professional meeting certain requirements, effective January 1, 2002.	Section 4105 of the Balanced Budget Act (BBA) of 1997 permits Medicare coverage of the diabetes outpatient self-management training (DSMT) services when these services are furnished by a certified provider who meets certain quality standards, effective July 1, 1998
Provider Qualifications and Requirements	Registered dietitian or nutrition professional who meet the following criteria: • BS degree in nutrition or dietetics • Completion of 900 hours of supervised dietetics practice • Licensed or certified as a dietitian or nutrition professional by state in which services are performed (federal employees can be licensed or certified in any state). • "Registered Dietitian" credential with the Commission on Dietetic Registration (CDR) is proof that education and experience requirements are met. • Grandfathered dietitian, nutritional professionals licensed or certified as of 12/21/00.	Program must be accredited as meeting approved quality standards, i.e. National Standards for Diabetes Self-Management Education Programs. CMS-approved national accreditation organizations include American Diabetes Association and the Indian Health Service. **NOTE: A Diabetes Education Program Cannot Seek Reimbursement From Medicare Until The Program Has Been Accredited.**
Qualifying Diagnoses	Diabetes: • Type 1 • Type 2 • Gestational Renal: • Non-Dialysis Kidney Disease • Post-Kidney Transplants	• New onset diabetes • Inadequate blood sugar control (HgA1c 8.5 mg/dl or more) • Change in treatment regimen • High risk for complications based on inadequate blood sugar control • High risk based on at least one of the following: Lack of feeling in the foot or foot complication; pre-proliferative or proliferative retinopathy or prior laser treatment of the eye; kidney complications related to diabetes. **NOTE:** beneficiaries with diabetes, becoming newly eligible for Medicare, can receive DSMT.
Limitations of Coverage	• No coverage for maintenance dialysis • If beneficiary has diabetes and renal disease, the number of hours allowed is for diabetes or renal disease. • Only face-to-face time with patient DSMT and MNT services cannot be provided on the same date.	• No payment will be made for group sessions unattended (class attendance sheet) • Only Face-to-face time with patient • DSMT and MNT services cannot be provided on the same date.

Table 1. Continued

Medicare Benefits and CMS Coverage Guidelines	MNT Medical Nutrition Therapy	DSMT Diabetes Self-Management Training
Other Conditions of Coverage	• The number of hours covered in a 12-month period (episode of care) cannot be exceeded. • Services can be provided on an individual or group basis	The training must meet the following conditions: • Following an evaluation of the beneficiary's need for training, the treating provider must order DSMT. • Included in a comprehensive plan of care (POC). • It is reasonable and necessary for treating or monitoring the beneficiary's condition (signed statement of need). • When training under a POC is changed, the provider must sign it. • In the initial DSMT benefit, 9 of the 10 hours must be provided in a group setting (2-20 individuals) unless special conditions exist: o No group class is available within 2 months of the date the training is ordered; or, o The beneficiary has special needs resulting in problems with hearing, vision or language limitations. o Additional insulin instruction is needed.
Practice Settings	Included: Hospital outpatient department, FQHC, RHC and free-standing clinics, and Home Health Excluded: Inpatient stay in hospital or skilled nursing facility	Included: Hospital outpatient department and free-standing clinic Excluded: Inpatient hospital, skilled nursing facility, nursing home, hospice, FQHC and RHC
Basic Coverage	Initial MNT: 3 hours per year in the first year. Follow-up MNT: 2 hours per year in subsequent years. Hours can be spread over any number of visits during the year (1 visit = 15 min.) The number of hours can be increased if the treating physician determines there is a change in medical condition, diagnosis and/or treatment plan.	Initial DSMT: 10 hours per year in the first year (1 hour individual assessment or specialized training plus 9 hours group classes). Continuous 12-month period-need not be on calendar-year basis. Follow-up DSMT: 2 hours per calendar year in subsequent years (individual or group training). Hours can be spread over any number of visits during the year (1 visit = 30 min.)
Diabetes Self-Management Training Benefit and MNT Benefit	**Until October 2002**, CMS considers MNT and DSMT fully coordinated benefits. This means the MNT benefit for diabetes will be provided as part of the initial DSMT benefit and follow-up DSMT and MNT services are limited to the number of hours under either benefit. **After October 2002**, CMS considers DSMT and MNT complimentary services. This means Medicare will cover both DSMT and MNT without decreasing either benefit as long as the referring physician determines that both are medically necessary.	SAME

Table 1. Continued

Medicare Benefits and CMS Coverage Guidelines	MNT Medical Nutrition Therapy	DSMT Diabetes Self-Management Training
Referring (licensed) Providers	Physician and physician specialist	Physician or qualified non-physician practitioner: nurse practitioner, clinical nurse specialist, physician assistant, nurse midwives, clinical psychologists and clinical social workers
Provider Referral	Provider written referral containing qualifying diagnosis, physician Unique Provider Identification Number (UPIN) and signature.	Provider written and signed referral for training containing diagnosis and a written comprehensive plan of care (POC). The POC must describe the content, number of sessions, frequency, and duration of the training as written by the provider treating the beneficiary's diabetes condition.
Protocols or Standards	RDs and nutritionists should use nationally recognized protocols such as the American Dietetic Associationsí MNT Evidenced-Based Guides for Practice.	**Indian Health Service** Integrated Diabetes Education and Care Standards based on IHS Diabetes Standards of Care and National Standards for Diabetes Education. Only program in nation that integrates educational, clinical and public health standards. OR **American Diabetes Association** Recognition Program based on the National Standards for Diabetes Self-Management Education.
Billable to Medicare Part A? (Facility fee) *Subject to change based on CMS rulings	No	Hospital Outpatient - Yes (OMB Rate). Bill Type 13x (UB-92) Revenue Code 51X Provider-Based Clinic – Yes (OMB Rate) Bill Type 13x (UB-92) Revenue Code 51X Free Standing Clinic (FQHC/RHC) - No
Billable to Medicare Part B? (Professional services fee) Enrolling as Medicare Provider	Yes. HCFA 1500 To enroll in Medicare Part B, complete a **CMS Form 855**I, *"Medicare Federal Health Care Provider/Supplier Enrollment Application."*	Hospital Outpatient – Yes ìIncident to". HCFA 1500 Free Standing Clinics – Yes. HCFA 1500 Referring provider must be enrolled as a Medicare Part B Provider. Once diabetes education program recognition is received, a copy of the ADA or IHS NDP certificate must be submitted to Medicare.
Provider Identification Number (PIN)	RD or nutrition professional must enroll in the Medicare program to become a recognized Medicare provider. Upon enrollment, the RD or nutrition professional will receive a Medicare PIN, which is used on MNT claims.	N/A
Other CMS 855 Forms for Enrollment	Complete **CMS Form 855R**, "Medicare Federal Care Reassignment of Benefits Application," to reassign benefits back to employer.	N/A
Facility Application? **CMS Form 855B** *"Application for Health Care Suppliers that Bill Medicare Carriers"*	Yes. If facility does not have one.	Yes. If facility does not have one. See above

Table 1. Continued

Medicare Benefits and CMS Coverage Guidelines	MNT Medical Nutrition Therapy	DSMT Diabetes Self-Management Training
CPT or HCPCS Codes	**97802** Medical nutrition, individual, initial visit only, each 15 minutes **97803** Medical nutrition, individual, subsequent, each 15 minutes **97804** Medical nutrition, group, each 30 minutes Multiple units of the codes can be used based on medical necessity and the complexity of the MNT decision-making.	**G0108** Diabetes outpatient self-mgmt training service, individual, per 30 minutes **G0109** Diabetes outpatient self-mgmt training services, group session, (two or more), per 30 minutes
Payment	• RD should establish a fee schedule (based on usual and customary MNT fees) for their MNT services. • Allowed payment rates have been established under the physician's fee schedule • Payment will be at 80% of the lesser of the actual charge or (80%) of 85% of the amount determined under the physician fee schedule. • CMS applies a geographical adjustment factor (GAF) to the MNT rates in regions of the country. • Deductible and coinsurance apply. Free Standing Clinics - Medicare Part B fee schedule based on geographic state. Deductible and coinsurance apply.	Free Standing Clinics - Medicare Part B fee schedule based on geographic state. Deductible and coinsurance apply. Hospital Outpatient facilities – 2002 All Inclusive Rate
Billing for Services Not Covered	Medicare Part B cannot be billed for non-covered MNT or for non-covered MNT services as "incident to physician's services."	Medicare Part B cannot be billed for non-covered DSMT
Medicare Part B Documentation Requirements	• Patient Name/Medical Record Number • Qualifying Medical Diagnosis • Written Provider Referral • Physician Signature • RD Name and Signature • Date of service • Time in – Time out and total time (to calculate number of units) • MNT CPT Code • Individual or group encounter* • Visit number with cumulative time spent with patient to date* (*recommendations to facilitate timely and accurate billing)	• Patient Name/Medical Record Number • Qualifying Medical Diagnosis indicating condition requiring training • Written provider referral and signed statement of need on initial encounter • Date of original referral on all subsequent visits* • Physician Signature • Date of service • Time in – Time out and total time (to calculate number of units) • DSMT G- Codes • Individual or group encounter* • Visit number with cumulative time spent with patient to date*
Resources - Medicare Part B	• Medicare Part B Newsletter 9/1/2001. No 01-020. Page 27-28 • *www.trailblazerhealth.com>Part B>IHS* • ADA Web site: *www.eatright.org*	• Medicare Part B Newsletter 9/1/2001. No 01-020. Page 31-32 • *www.trailblazerhealth.com>Part* B>IHS AADE Web site: *www.aadenet.org*
Resources - Medicare Part A	Not applicable	I H S Handbook. Pages 98-104 *www.trailblazerhealth.com>Part* A>IHS
Claim Follow-up	Medicare B IHS hotline: 1-866-448-5894 As for claim check status. Have available Patient Medicare # and Date of Service.	Trailblazers DDE Online System. Each facility Business Office may have access to this electronic system.

Accuracy of HIV-related Coding Within the PCC

Richard F. Leman, MD, EIS Officer, Centers for Disease Control and Prevention and IHS Epidemiology Program; and Stanley P. Griffith, MD, Medical Informaticist, Information Technology Support Center, IHS; Albuquerque, New Mexico

The IHS National Epidemiology Program recently conducted an evaluation of the completeness and accuracy of reporting of human immunodeficiency virus (HIV) and acquired immunodeficiency syndrome (AIDS) among American Indians and Alaska Natives (AI/ANs) in cooperation with one state and its associated IHS Area and service units. As part of this study, an analysis of the accuracy of the coding of HIV-related provider narratives within the clinical component, the PCC (Patient Care Component), of IHS's healthcare information system, RPMS (Resource and Patient Management System), was performed.

Methods

The PCC repositories at participating service units were searched to identify any individual seen at any of their facilities between 1980 and 2000 who had a diagnostic visit code suggesting HIV infection. The ICD-9 diagnostic codes used in this search are listed in Table 1. These individuals were then matched against the state's HIV/AIDS surveillance database. If we could not confirm that specific individuals had an HIV infection using the state's database, we reviewed their written medical records to either confirm their positive HIV status or to determine reasons for the inconsistency. Furthermore, for each of these individuals, additional searches of the local RPMS systems were conducted to examine the provider's actual diagnostic narrative, relevant laboratory test results, medication information, or other information. From these additional electronic data we attempted to independently determine whether these individuals actually did or did not have HIV infection.

Table 1. ICD-9 codes suggestion HIV infection

042. – 044.9	Symptomatic HIV/AIDS
795.71 – 795.8*	Non-specific serologic evidence of HIV
V08.	Asymptomatic HIV infection

Results

The data search of the RPMS databases identified 100 individuals who had a visit within the study time period and for whom one of their visit diagnoses matched our list of potential HIV diagnoses. For these 100 cases, comparison with the state's database followed by chart review of those cases that could not be confirmed by the state's database verified the presence of HIV infection in 82. Eighteen individuals' diagnosis could not be confirmed either by the state database or by chart review, and therefore, we further analyzed information from the written chart and gathered additional RPMS data to determine the reasons for this misclassification.

Charts were unavailable for 3 (3%) patients. RPMS data on these individuals revealed that all three did have HIV infections, giving a final positive predictive value of the PCC's HIV related ICD codes of 85% (Table 2).

Table 2. Accuracy of PCC diagnostic codes in identifying Individuals with HIV infection

	#	%
True Positives	85	85
Confirmed HIV+	82	82
Charts not available, but confirmed HIV+ from RPMS data	3	3
False Positives	15	15
Non-specific code, confirmed HIV-	3	3
HIV-specific code, confirmed HIV-	12	12
Totals	100	100

For the remaining 15 individuals, the determinations from both the chart reviews and additional RPMS data were identical for all but one (Table 3). In this latter instance, visit data for another individual was entered into this individual's PCC record, and so this individual was erroneously identified by the PCC as having an HIV infection. Subsequent chart review confirmed that this was a data entry error.

Table 3. Review of individuals whose HIV+ status could not be confirmed by state HIV database or chart review

Explanation	Number
Miscode	10
Inaccurate provider recording	2
Recorded past history of HIV, subsequently disproved	2
Data entry error	1
Chart missing, but RPMS confirms HIV +	3
Total	18

Both chart reviews and RPMS data confirmed that the remaining 14 (14%) individuals had good evidence that they did not have an HIV infection. Ten had written provider narratives consistent with having been tested for HIV that were miscoded as having HIV disease. Among the remaining four, in one instance the provider had written "HIV," but this appeared to be incorrect; in another instance the provider wrote "Possibly HIV Positive" and this was coded erroneously as HIV; and in two instances the provider had apparently accurately recorded a "History of HIV," a history given by the patient that was subsequently disproved by specific testing. Of the 10 "miscodes," one was an infant of an HIV positive mother who was treated with AZT until testing for HIV infection proved conclusively that the child was not infected.

Because of the original study design, we could not determine how many individuals who had HIV did not have a visit entered into the PCC with a diagnostic code that matched our list of potential HIV diagnoses (false negatives). Furthermore, we did not attempt to determine how many individuals without HIV did not have any HIV visit diagnoses (true negatives). Nonetheless, to put this in context, at least one of the larger study service units included in this study performs approximately 500-600 HIV ELISA screening tests a year. In over ten years of HIV testing at all the study sites, easily comprising thousands of such tests, these individual visit diagnoses were only miscoded ten times and the provider only recorded an incorrect HIV diagnosis twice.

Conclusions

Our results suggest that the PCC can be used to electronically identify a set of patients who are likely to have HIV disease. PCC was even able to identify three individuals with HIV whose charts were not available. These results also suggest, though, that this automated PCC search of diagnostic codes is not sufficiently accurate by itself to identify these patients for many uses; the false positive rate is high enough that the identified cases still need to be further evaluated. Nevertheless, as a tool to perform a first screen for individuals in a population whose records could then be further reviewed, it was very effective. Interestingly, we found we could also use RPMS for that further manual review, to eliminate all but one of these false positives remotely and electronically without having to travel to all study sites to pull charts. In the one remaining case, only a careful chart review would have revealed that the patient did not have an HIV infection.

Our data also provide some early suggestions about how these results for HIV might be extrapolated to other conditions. Searching for patients with specific diagnoses is, in some ways, analogous to using screening tests to identify conditions or diseases. From our extensive experience with screening tests we know that even a highly sensitive and specific test will have a significant number of false positives if the condition or disease for which one is screening has a low prevalence in the population to be screened. HIV disease, although increasing in frequency, is still relatively infrequent in many general populations, including the one we studied. Therefore, the significant number of false positives obtained by searching PCC diagnostic codes did not surprise us. We would expect significantly fewer false positives if we were screening for conditions or diseases that are much more prevalent, e.g., patients with diabetes in many AI/AN populations, or HIV in selected subsets of patients with a higher likelihood of disease.

We also note some things that might help improve the accuracy of coding in PCC. Providers can help decrease miscoding by providing an unambiguous written diagnostic narrative (i.e., "Purpose of Visit") to coders. Medical records staff can decrease miscoding by clarifying the criteria for use of HIV/AIDS-related codes.

There are limitations to this study. Since we only looked at those patients whose PCC diagnostic codes suggested HIV disease, we cannot comment on the sensitivity, specificity, or false negative rates of this method. We were only allowed to use the state's database to confirm patients about whom we were already aware. We did not have access to information about diagnosed patients for whom IHS provided regular care but who we had not identified as HIV infected. It is therefore very possible that the PCC missed some diagnosed patients with HIV (an issue of sensitivity).

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 small numbers of data from only a limited number of sites in one state and one IHS Area. As we increasingly use PCC data to identify individuals with certain conditions or diseases, we need to continue to measure the accuracy of doing so in an ongoing fashion, in increasingly varied circumstances.

Acknowledgements

The authors would like to thank our colleagues in the Area Office and local facilities who greatly assisted us with this analysis. □

Nursing PAC Calls For Mentors And Protégés

Mentors are wanted! Mentor candidates are PHS nurses with pertinent areas of experience who are willing to volunteer to provide knowledge and expertise to other PHS nurses. Mentors can provide information and guidance about topics such as the agency they serve or have served, uniform etiquette, military courtesy, licensure, billet structure, details/other assignments, and other areas. Mentors are listed under their specialty areas on the PHS Nurse Mentoring Resource Directory.

The PHS Nurse Mentoring Resource Directory has been developed to facilitate mentoring of PHS nurses and to assist them in their career development. This directory consists of volunteer PHS nurses, both civil service and commissioned officers, who are willing to share their knowledge and expertise with other PHS nurses. This directory can be found on the PHS nursing website, *phs-nurse.org.*

Protégés are wanted! PHS nurses with questions about PHS, nursing, or related topics are encouraged to find a Mentor Resource on the PHS Nurse Mentoring Directory. Nurses are listed according to their specialty area of expertise and contact information is listed. Protégés can contact them directly. If a subject matter they have a question about is not listed on the Directory, they can contact the Nurse Mentoring committee by email at *phsnsgmentor@hotmail.com*.

Why Mentor?

- It is an opportunity to share valuable knowledge and expertise with another PHS nurse.
- Being a mentor can bring satisfaction in helping a protégé define and achieve their career and professional goals and objectives.
- A sense of pride can be gained from observing protégé development.
- Being a mentor is an opportunity to improve interpersonal communication, motivation, coaching, counseling, and leadership skills.
- Pleasure in contributing to the future of PHS.

If you would like to be mentor, complete the application on the above website. You can also contact CAPT Carol Lindsey, Chair, Nurse Mentoring Committee, at *carlindsey@aol.com*, or CAPT Lauren Tancona, Co-chair, at *lauren.tancona@ hq.ihs.gov*, or telephone (303) 236-0190.

Take charge of your nursing career with passion and purpose! □

"Virtual" Summer Geriatric Institute Available Online

The New Mexico Geriatric Education Center (NMGEC) is excited to announce the first "Virtual" Summer Geriatric Institute derived from the actual Institute which took place June 13-15, 2002. The "virtual" portion will follow the actual presentations by approximately three weeks, when it will be accessible on our website at *http://hsc.unm.edu/som/fcm/gec.*

The NMGEC's Summer Geriatric Institute focuses on health care for American Indian elders. The "virtual" institute will feature audio/video recordings and presentation materials for several of the five geriatric topic areas being presented; you may choose to "participate" in one or all. The topic areas are Frailty; Falls: Assessment and Prevention; Incontinence/Ostomy Care; Osteoarthritis/ Osteoporosis; and Sensory Deficits/Oral Health. The tuition for the virtual institute will be $40 per topic or $100 for all. The "virtual" Institute offers continuing medical education credit and continuing education credits for social workers, nurses, and allied health providers.

Registration will be through the registration brochure where you may choose the "virtual" institute if you feel you were unable to attend in Albuquerque. Alternatively, you will be able to register for the "virtual" institute directly on the website when it goes live.

If you have questions about this new offering by the NMGEC, please give us a call at (505) 277-0911; or e-mail *dfranklin@salud.unm.edu*. □

LETTER TO EDITOR ☐

Meeting GPRA Standards for DV P&P

To the Editor:

The article by Clark and Monahan, "1998 IHS Domestic Violence Policies and Procedures Survey Summary Report" (*The IHS Provider*, Volume 27, Number 2, February 2002, pages 25-26) contains a great deal of very useful information. However, the conclusion that "more than 70% of IHS sites have DV P&P" (policies and procedures) and this "satisfies the GPRA requirement at that time" is not supported by the authors' data. According to their results, 64% of their respondents reported having P&P for DV. The actual figure is presumably less, because a) the survey had only a 64% response rate and b) respondents are more likely than non-respondents to have a P&P in place.

My concern is the important issue of intimate partner violence will not fully receive that attention it deserves from IHS because of a false impression that GPRA requirements are being met and a majority of IHS facilities have adequate P&P in place. Also, it would be helpful if the authors can summarize model policies and procedures in a future article.

Lawrence Berger, MD, MPH
Albuquerque, New Mexico

This letter was forwarded to the author who offered the following reply.

To the Editor:

Dr. Berger is correct. Less than 70% of IHS sites had DV P&P. The original survey report describes three sets of responses: the surveys that were mailed back to me; a subset of these responses; and the results of a brief telephone survey of the sites that did not return the survey.

For the *Provider* Summary Report, I combined the responses about DV P&P from the original survey and the brief telephone survey. I added these two sets incorrectly. The correct result is 62%. The GPRA indicator was not met. I apologize for this error, and thank Dr. Berger for pointing it out.

Donald Clark, MD, MPH
Albuquerque, New Mexico

Correction

In the article entitled "The Perinatologist Corner: Case-based, Online CME Available on Maternity Issues" (*The IHS Provider*, Volume 27, Number 2, February 2002, pages 32-33), Dr. George Gilson's e-mail was given incorrectly. The correct address is *gjgilson@anmc.org*.

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