

In Brief

Veterans who use the Veterans Health Administration (VHA) are more likely to be nonwhite, be unemployed, have lower income, have lower health status, and have more activity limitations than male veterans not using the VHA. Veterans using the VHA also show a higher concurrent comorbidity status. Despite this high-risk population, the VHA health care system provides an exemplary model of high quality diabetes care for the nation's veterans.

Diabetes Care in the Veterans Health Administration

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The Veterans Health Administration (VHA), the single largest health care system in the world, has a congressional mandate to provide health care for veterans who develop a disability or disease while serving in the U.S. military. These veterans, termed "service-connected," are eligible to receive health care for their disorder at no cost to them. Depending on their eligibility, they may be able to receive care for all the disorders they may have.

The VHA is also mandated, as funds allow, to provide care for veterans who are indigent or unable to afford private health care. These veterans, termed "nonservice connected," may have to make co-payments for their medications and care.

The VHA may also provide care to veterans who have no health insurance or are underinsured and who seek assistance with the expenses of diabetes medications and care from the government. Escalating costs for medicines that are beneficial for people with diabetes can add a significant financial burden, even in monthly co-payments in the private sector, causing veterans to seek out government support for their mounting medication costs.

Diabetes is a progressive disease that poses management challenges in any health care environment. In the VHA system of care, diabetes patient demographics indicate a higher-risk population of elderly men, many of

whom have psychiatric problems such as post-traumatic stress disorder (PTSD) from combat or other trauma. In addition, because the VHA is a continuing system of care and patients are followed for many years, diabetic patients often have the long-term complications of diabetes, either because they have had diabetes for many years, or because they developed the complications before they came to the VHA and have exhausted all other resources.

The number of diabetic patients seen by VHA is growing, as is the complexity of their needs. The prevalence of diabetes in the VHA system rose from 16.7% in fiscal year 1998 to 19.6% in fiscal year 2000.¹ As veterans from the World War II, Korean War, and Vietnam War eras age, the VHA is seeing diabetic patients with long-term complications and the other comorbidities that may accompany aging. In addition, the frequent presence of PTSD and other psychiatric disorders can complicate diabetes management. The VHA has the largest PTSD program in the world, and PTSD and other psychiatric disorders affect 15–20% of the VHA patient population.² These psychiatric disorders often require medications that can cause weight gain or increase insulin resistance, thereby necessitating more aggressive diabetes management.¹ Despite these management challenges, the VHA health care sys-

tem provides an exemplary model of high quality diabetes care for the nation's veterans.³

Reiber et al.⁴ reviewed data on veterans from the 2000 Behavioral Risk Factor Surveillance System and the VHA administrative and veterans' benefits database to determine characteristics of veterans who utilize the VHA for their health care. Veterans who use the VHA were more likely to be nonwhite, be unemployed, have lower income, have lower health status, and have more activity limitations than male veterans not using the VHA. Veterans using the VHA also showed a higher concurrent comorbidity status. Coronary events, the most labor- and cost-intensive diagnosis for diabetes, are disproportionately higher in the VHA system for male veterans. Smith and Maynard⁵ found that the burden of coronary hospitalizations was larger in the VHA than in non-VHA facilities for men (proportionate hospitalizations ratio 1.82 vs. 1.66). However, evaluation of self-reported preventive diabetes care showed that services received by veterans in the VHA were at equivalent or higher levels than those received by veterans and nonveterans outside the VHA.⁴

Despite the at-risk population of the VHA system, a recent study showed that the VHA system provided more recommended tests and services for diabetes compared to a managed care system.⁶ Ninety-three percent of VHA patients had an annual hemoglobin A_{1c} (A1C) test, compared to 83% of managed care patients. Seventy-five percent of VHA patients were instructed about how aspirin can prevent heart attack and stroke, compared with 49% of managed care patients, and 91% of VHA diabetes patients had an annual dilated eye exam, compared with 75% of managed care patients.

In addition to more frequent tests and services, the VHA has also demonstrated an improvement in glycemic control in this special population. Weinstock et al.⁷ compared A1C levels biyearly from 1994 and 2000 for veterans within the VHA system. In fiscal year 2000, the mean last A1C level was 7.6%, down from 8.4% in 1996, demonstrating improvement in care. However, this glycemic improvement was associated with increasing medication expenditures.

Lower-extremity amputations contribute to a large personal as well as general health care financial burden

in diabetes, and amputation rates among veterans treated within the VHA system in 1998 were lower for all age groups compared to the National Hospital Discharge Survey information from 1996.⁸ Thus, while presented with a challenging diabetes patient population, the VHA has been able to provide exemplary care to those who served in the U.S. military services.³

CASE STUDY

R.J. is a 58-year-old African-American man diagnosed with type 2 diabetes 11 years ago. He is transferring care to the VHA because he lost his job and health insurance. He is a high school graduate and served in Vietnam. He has been diagnosed with PTSD, for which he has a 30% disability. His PTSD interferes with his ability to function, particularly to socialize, when he feels stressed or under pressure.

He has been prescribed the following medications:

- Rosiglitazone, 4 mg twice daily
- Metformin, 1 g twice daily
- Insulin, 20 units aspart/40 units NPH prebreakfast, 20 units aspart prelunch, 20 units aspart predinner, and 100 units glargine at bedtime
- Simvastatin, 40 mg at bedtime
- Atenolol, 50 mg daily
- Hydrochlorothiazide, 25 mg daily
- Lisinopril, 40 mg daily
- Amitriptyline, 25–50 mg at bedtime
- Nortriptyline, 25 mg twice daily
- Venlafaxine hydrochloridel, 225 mg daily

On examination, R.J.'s temperature is 97.8° F, his blood pressure is 160/98 mmHg, pulse is 107 bpm, weight is 269.4 lb, and BMI is 41 kg/m². His nonfasting laboratory test values are:

- Blood glucose 326 mg/dl (normal 70–105 mg/dl)
- Blood urea nitrogen (BUN) 31 mg/dl (normal 6–20 mg/dl)
- Creatinine 1.8 mg/dl (normal 0.8–1.5 mg/dl)
- Potassium 5 mEq/l (normal 3.3–5.1 mEq/l)
- Serum glutamic oxaloacetic transaminase 63 unit/l (normal 0–37 unit/l)
- Serum glutamic pyruvic transaminase 93 unit/l (normal 0–39 unit/l)
- Microalbumin/creatinine ratio 22.1 mg/g (normal < 30 mg/g)
- A1C 10.2% (normal 4–6.4%)
- Direct LDL cholesterol 91 mg/dl (normal < 100 mg/dl)

He is referred to the diabetes clinic for self-management training and assistance with diabetes management.

Diabetes Assessment

R.J. lives with his wife, who does most of the food shopping and cooking. She also works at a local discount store. They have three grown children who live in the area and four grandchildren, with whom R.J. is very close.

R.J. eats three meals a day at regular times and reports that he "grazes all evening" because he is bored. He tries to avoid sugar but does not know how many carbohydrates he consumes at a meal. He likes salt and reports using "a lot" of it. He says he did not know salt could affect his blood pressure. He admits to drinking two or three beers a night and reports that he quit smoking cigarettes about 15 years ago.

As a young man, R.J. liked to play basketball. He was active in his church until he lost his job; his wife is still active. Now, he is not very physically active and gets bored walking.

He says he has no problem taking insulin but does worry about hypoglycemia and tends to eat so his blood glucose will not get too low. He often forgets to take his pills. R.J. used to test his blood glucose but stopped when he lost his job because he could not afford test strips.

R.J.'s foot examination shows adequate pulses but insensitivity to the Semmes-Weinstein 5.07 monofilament at the plantar surfaces of the great toes and first metatarsal heads bilaterally. He has hammertoes, with maceration between the third, fourth, and fifth digits on his right foot, and his heels are very dry. He is unable to see the plantar surfaces of his feet or reach his feet. However, his nails are well trimmed and cared for by his wife. R.J. is not wearing socks because he has trouble putting them on. He is wearing old house slippers with torn linings. He does not examine his feet on a regular basis.

Although he has had diabetes for a long time, R.J. he has never attended any formal classes because he does not like groups. He says his PTSD makes him very uncomfortable "being around a lot of people."

Diabetes Care Plan

Nutrition. R.J. may benefit from learning to read food labels for sodium and carbohydrate content and try-

ing to limit the amount of sodium and carbohydrate he consumes at meals. He needs referral to a dietitian.

Physical activity. Because he used to like to play basketball, he may be able to identify a gym or playground in his area where he can “shoot hoops.” In addition, his church may have some sports activities with which he can become involved.

Monitoring. R.J. needs a glucose meter, test strips, and instruction in how to use them and how to interpret the data they yield. He may also benefit from a home blood pressure machine if he is willing to monitor his blood pressure at home.

Medications. R.J. will need to stop his rosiglitazone and metformin because of his abnormal liver function tests and elevated BUN and creatinine, although the latter may be related to dehydration. He needs to be screened for hepatitis. Baseline data are needed to determine an appropriate insulin dose. A medication-organizing box may help him remember to take his pills. Because it is unknown how much of his prescribed oral medications he is actually taking, no changes will be made at this time except for discontinuing his rosiglitazone and metformin. He may benefit from a visit with a pharmacist.

Stress. Because R.J. served in Vietnam, he is eligible for service-connected disability for his type 2 diabetes. This will provide him a monthly stipend, and he will not have to make VHA co-payments for anything related to his diabetes. R.J. may benefit from referral to the PTSD clinic for specific treatment and a PTSD support group with other Vietnam War combat veterans. He may also benefit from evaluation of his psychiatric medications. Because he does not like groups, initial diabetes self-management training will be done one-on-one.

Foot care. R.J. needs adequate footwear to accommodate his hammertoes. He also needs lamb’s wool for the maceration between his toes and an emollient for his heels. He may benefit from an occupational therapy appointment for a complete evaluation of his ability to care for his feet adequately and for provision of assistive equipment, such as a long-handled mirror and sock assister. He also needs education to protect his insensate feet from trauma.

Interventions

The diabetes nurse discusses the above plan with R.J. For now, his responses are as follows:

Nutrition. He wants to learn how to read labels for carbohydrate and sodium. He would like to bring his wife to an appointment with the dietitian. He is given a handout about the carbohydrate and sodium content of foods. He will start keeping track of how much sodium he eats each day and how many grams of carbohydrate he has at each meal.

Activity. He is not interested in increasing his activity right now but will see if there are any playgrounds where he lives where he could play basketball if he decides to do this later.

Monitoring. Because he wants to test his blood glucose, he is given a meter and instructed in how to use it and how to keep a log to track his glycemic patterns. Strips are ordered from the pharmacy for him. Because he would also like to test his blood pressure at home, a home blood pressure monitor is ordered from Prosthetics.

Medications. He is willing to stop taking rosiglitazone and metformin. He agrees to test his blood glucose before each meal and at bedtime to gather data for adjusting his insulin doses. He will call in five days with his blood glucose testing results. He thinks a seven-day pillbox would help him remember to take his pills. He thinks it would be helpful to talk to a pharmacist about his medicines.

Stress. He is very interested in filing for service-connected disability for diabetes and is given a handout on how to do this. He is also interested in attending a PTSD support group with other Vietnam veterans. A consultation is sent to Mental Health for him to get a provider for PTSD and to be evaluated for a PTSD support group.

Foot care. The nurse discusses with R.J. the importance of daily foot examinations, especially of the areas where his sensation is not good. He requests a long-handled mirror so that he can see the bottoms of his feet and a device to help him put on socks. A consultation is sent to Occupational Therapy for an assessment of his ability to safely perform foot care and for provision of the assistive devices requested. R.J. would also like orthotics and shoes to accommodate his hammertoes, and a consultation is sent to Podiatry

for evaluation and provision of orthotics and accommodative shoes, if indicated.

Self-Management Goals

R.J.’s self-management goals include:

- To find out what his blood glucose patterns are, he will test his blood before each meal and at bedtime and call the diabetes nurse in 5 days.
- To find out how much sodium he is eating, he will write down the sodium content of the foods he eats for 3 days and bring this to his dietitian appointment.
- To protect his feet, he will ask his wife to put the lamb’s wool between his toes and change it daily.
- To avoid dehydration, he will drink at least 1 quart of fluid (excluding alcoholic beverages) every day.

Supplies Ordered

- Medication-organizing box to help him remember to take his pills
- Lamb’s wool for between his toes and instructions for its use and washing care.
- Blood glucose meter and test strips for testing four times a day.

Referrals

R.J. was referred to:

- Nutrition Clinic for R.J. and his wife to learn carbohydrate counting and to learn about low-sodium foods and appropriate salt substitutes
- Pharmacy Clinic for review of his medications and how he is taking them
- Mental Health Department for PTSD care and medication evaluation and support group
- Occupational Therapy for foot care evaluation and provision of assistive devices
- Podiatry Department for footwear evaluation and provision

Follow-Up

- R.J. will call in 5 days with his blood glucose results. He will work with the diabetes nurse to adjust his insulin doses by phone.
- He will return for follow-up education in 3 weeks. He and the nurse will evaluate how he is doing on his self-management goals and on reading food labels and caring for his feet. They will discuss any barriers that may have arisen. They may also discuss increasing his physical activity if he is willing to

address that issue. They will also discuss all of the referrals and their results.

- R.J. will fast before his next visit, and testing will be ordered for fasting lipids, liver and kidney function, and hepatitis screening. He and the nurse may discuss referral to the Hepatology Clinic then.

Because the VHA provides comprehensive and ongoing care, all referrals can be taken care of within the system, and results can be recorded in patients' electronic medical records. Thus, any referring providers (in this case, the diabetes team) will be aware of when patients are scheduled for various clinics and the results of those visits. This helps to ensure continuity of comprehensive care.

References

¹Miller DR, Safford MM, Pogach LM: Who has diabetes? Best estimates of diabetes prevalence in the Department of Veterans Affairs based on computerized patient data. *Diabetes Care* 27 (Suppl. 2):B10–B21, 2004

²Available online from www.va.gov. Accessed March 2005

³Longman P: The best care anywhere. *Washington Monthly* January/February 2005. Available online at www.washingtonmonthly.com/features/2005/0501.longman.html. Accessed January 2005

⁴Reiber GE, Koepsell TD, Maynard C, Haas LB, Boyko EJ: Diabetes in nonveterans, veterans, and veterans receiving Department of Veterans Affairs health care. *Diabetes Care* 27 (Suppl. 2): B3–B9, 2004

⁵Smith NL, Maynard C: The burden of diabetes-associated cardiovascular hospitalizations in veterans administration (VHA) and non-VHA medical facilities. *Diabetes Care* 27 (Suppl. 2):B27–B32, 2004

⁶Kerr EA, Gerzoff RB, Krein SL, Selby JV, Piette JD, Curb JD, Herman WH, Marrero DG, Narayan KMV, Safford MM, Thompson T, Mangione CM: Diabetes care quality in the veterans affairs health care system and commercial managed care: the TRIAD study. *Ann Intern Med* 141:272–281, 2004

⁷Weinstock RS, Hawley G, Repke D, Feuerstein BL, Sawin CT, Pogach LM: Pharmacy costs and glycemic control in the Department of Veterans Affairs. *Diabetes Care* 27 (Suppl. 2):B74–B81, 2004

⁸Mayfield JA, Reiber GE, Maynard C, Czerniecki J, Sangeorzan B: The epidemiology of lower-extremity disease in veterans with diabetes. *Diabetes Care* 27 (Suppl. 2):B39–B44, 2004

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