

Improving the Compliance of the Annual Foot Examination and Monofilament Testing in Diabetic Patients at [REDACTED]

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GE-National Medical Fellowship Primary Care Leadership Program Scholar, Summer 2014

Abstract

The American Diabetes Association recommends that health care providers perform a complete foot exam on patients with diabetes at least once a year (1). The foot examination consists of examining the skin for foot ulcers, performing the Semmes Weinstein monofilament testing, and checking pedal pulses (dorsalis pedis). The Centers for Medicare and Medicaid Services (CMS) has integrated this guideline into a performance metric, Physician Quality Reporting System (PQRS) Measure #163. The measure requires the reporting of the ratio of a clinic's diabetic patients that have received an annual foot examination against the total number of diabetic patients the clinic has seen in one year. This study identified [REDACTED]'s Measure #163 ratio was 7.4%. From 10/2013 to 07/2014, [REDACTED], a Federally Qualified Health Center in San Antonio, TX, had 12,651 diabetic patients. Of the 12,651, only 7.4% or 935 patients had received their annual foot examination. Furthermore, the 935 patients had received their foot examination by the [REDACTED] podiatrist. The study proposed to increase the Measure #163 value by increasing referrals to podiatry and reinstating the annual diabetic foot examination performed by the nursing and medical assistant staff.

Keywords: Diabetes mellitus, Annual Foot Examination, Semmes Weinstein monofilament testing, peripheral neuropathy, amputation, CMS PQRS Measure #163

Introduction

I am passionate about the issues of primary care. For my project, I felt that I needed to understand and investigate the unfortunately too common issue of diabetes. Because diabetes is so invasive in primary care, I felt the need to become an expert as fast as possible. I have witnessed the effects of the disease in relatives and friends. I want to educate patients on the disease pathology, prevention and management. Prior to starting the project, I was informed that [REDACTED] has a large population of diabetics. Oftentimes, these patients have low socioeconomic backgrounds and educations. Through the study research, I have discovered that from 10/2013 to 07/2014, [REDACTED] had 12,651 patients with the diagnosis of diabetes that had at least one office visit. This represented 19.27% of the total active patient population in time frame.

For this project, I designed the scope to solve a question in the limited time frame of six weeks for the project with the focus on diabetes. During my medical education training at University of Southern California, I learned of the Semmes Weinstein monofilament testing that was a quick and easy test to determine the presence of the common diabetes complication of peripheral neuropathy. According to Diabetes Care, in the clinical setting, sensory examination with a 5.07 monofilament probably remains the single most practical measure of risk assessment. (2) Semmes Weinstein monofilament is an inexpensive, reliable, valid, and easy to use clinical indicator for identifying patients who are at risk for developing foot ulcers and

subsequent amputations (3). Later, I discovered that the standard of care for diabetic patients goes beyond the monofilament testing. The American Diabetes Association recommends that health care providers perform a complete foot exam on diabetics at least once a year. The foot examination consists of checking for foot ulcers, performing the Semmes Weinstein monofilament testing, and checking pedal pulses (dorsalis pedis). Thus, for the project, I had three main objectives. First, I needed to assess [REDACTED] compliance of the annual foot examination consisting of checking for foot ulcers, performing the Semmes Weinstein monofilament testing, and finding and grading the pulses (dorsalis pedis) in diabetic patients within the period of 10/2013 to 07/2014. Second, I sought to obtain or calculate [REDACTED] PQR Measure #163 ratio number. This value indicates what percent of the diabetic population are meeting their annual foot examination guidelines. Third, I sought to provide recommendations to increase rate of annual foot examination for diabetic patients and improve the PQR Measure #163 value.

Background

Diabetes mellitus is a multi-organ system disease. Macrovascular complications of diabetes include atherosclerosis, coronary artery disease, and stroke. Furthermore, microvascular complications of diabetes include neuropathy, retinopathy, nephropathy and increased infections. Diabetic neuropathy occurs from nerve damage caused by high blood sugar especially in the hands and feet. Diabetic neuropathy complications include ulceration, loss of limb from amputation, Charcot joint, urinary tract infection, hypoglycemia unawareness, low blood pressure, sexual dysfunction, and social isolation (4).

Nylon ten gram monofilament, also called Semmes-Weinstein monofilament, screening is a quick and easy way to check the patient's peripheral sensations and presence of neuropathy. Peripheral neuropathy in the feet predisposes diabetic patients to ulcerations, infections and possible amputations. According to the Indian Health Service, greater than 75% of these amputations can be prevented by primary care interventions (5).

Furthermore, the Centers for Medicare and Medicaid Services (CMS) has Physician Quality Reporting System (PQRS), a reporting program that uses a combination of incentive payments and payment adjustments to promote reporting of quality information by eligible professionals. PQRS Measure #163 requires reporting of the ratio of a clinic's diabetic patients that have received an annual foot examination against the total number of diabetic patients the clinic has seen in one year.

Methodology

This project's research study design is an observational chart review of any patients with a diagnosis of diabetes mellitus that has at least one office visit to a [REDACTED] clinic from 10/2013 to 07/2014 for the compliance of the annual diabetic foot examination that consists of checking skin for ulcers, performing the Semmes Weinstein monofilament testing, and checking pedal pulses. The data was gathered from patient charts in [REDACTED] Electronic Medical Record (EMR). The inclusion criteria were that patient had the diagnosis of diabetes and have visited a [REDACTED] clinic at least once in the time frame of 10/2013 to 07/2014. The first step was to compile a report of all patients with diagnosis of diabetes within the time frame with at least one office visit (12,651 unique patients). Initially we were going to separate the compiled

list of patients into those that have been tagged with the ICD 9 billing codes (ICD 9 Codes: G9226, G9224, G9225, and CPT II 2028F) for the annual diabetic foot examination and those that haven't (see Appendix 1). Unfortunately, [REDACTED] has used these billing codes and we are unable to separate the data using this method.

As another method to separate the data, we assumed that the diabetic patients that have been referred and have seen the [REDACTED] podiatrist have received their annual diabetic foot examination. We assume that these patients have a 100% compliance with the annual diabetic foot examination. Then we separated the list of all diabetic patients into those that have seen podiatry (935 patients) and those that haven't (11,716 patients) (see Appendix 2). Of those that haven't seen podiatry (11,716 patients), we randomly sampled these diabetic patients to examine if their EMR chart contains any documentation of the diabetic foot examination. For each of these charts (11,716 patients), we have looked at the SOAP note documentation for each office during the time frame (10/2013 to 07/2014). From the 12,651 total diabetic charts, we have used a random list generator to obtain 112 charts using the random.org to be researched. Then we randomly compiled 7,000 charts from the active nonpodiatry group (11,716 patients) and of these, we randomly sampled 3 to 10 charts from each [REDACTED] provider for a total of 176 charts. Through both methods, we have obtained 288 charts.

Results

In the period from 10/2013 to 07/2014, [REDACTED] had 12,651 patients with a diagnosis of diabetes that had at least one office. These diabetic patients accounted for 19.27% of [REDACTED] total active population of 65,645 patients. Diabetics accounted for almost 20% of

the patients in the 9 month period. Of the 12,651 diabetic patients, only 935 patients had a foot exam in the 9 months; furthermore, these patients were referred and seen by [REDACTED] podiatrist. Thus, only 7.6% of the diabetics had received their annual foot exams. There was no evidence to suggest that the annual diabetic foot exam was performed outside of podiatry from the random sampling of 288 charts.

Discussion

[REDACTED] Measure #163 value of 7.6% or 935 patients out of 12,651 is critically low, especially since the ADA guidelines indicate that every diabetic patient should receive an annual diabetic foot examination to prevent infections, amputations, and further complications from diabetes. All of [REDACTED] diabetic patients that received the yearly foot examination were through podiatry. We randomly sampled 288 charts out of the 11,716 diabetics that haven't visited podiatry and found no evidence of documentation of the annual foot examination being performed. For data analysis perspective, according to surveysystem.com, a sample of 261 out of 12,651 indicates a 95% confidence level with a 6 confidence interval. The project exceeded this level by examining 288 charts.

Limitations of the Study

1. Nextgen Electronic Medical Record (EMR) access and compilation of diabetic patients were not given until the end of the third week of a six week long project. This greatly impacted the time allowed to research, explore and examine the data in the patient charts.
2. The project sought to examine a time frame of one year to follow the Annual Foot Examination guidelines of one year reporting period. But [REDACTED] had recently switched EMR

systems from Sevocity to Nextgen EMR. The Sevocity data did not migrate completely into Nextgen. The study is using a 9 month reporting time to determine the compliance of a 12 month reporting period.

Closer look at the data

One patient had a diagnosis of a foot ulcer in addition to diabetes. The health care provider (physician, physician assistant, or nurse practitioner) correctly referred the patient to podiatry for specialty care. There were a number of charts that the providers documented the patient's skin was normal and the vascular system's dorsalis pedis was normal. These charts had good documentation of the diabetic's skin and vasculature but there was no documentation of the Semmes monofilament test for sensory loss or peripheral neuropathy. In the last group of charts, there were three patients diagnosed with neuropathy in addition to the diabetes in 05/2013, and 08/2013, 09/2013, respectively. But there was no documentation of the diabetic foot examination. The annual diabetic examination is necessary in these patients to assess the extent and progression of the neuropathy from their diagnosis a year ago. In the most troubling example, a patient had a right toe amputation and later right below knee amputation 3 years ago due to complications from diabetes. It is troubling that there was no documentation of any diabetic foot examination in these three years because the patient has an extremely high risk of amputation in his/her other leg. The example could be attributed to the study's limitation in the inability to access the patient's chart before 10/2013, where Centromed switched EMR systems.

Recommendations

CMS has stated that beginning in 2015 PQRS will apply payment adjustment to those that do not satisfactorily report data on quality measures for covered professional services. To increase this rate for CMS PQRS Measure #163 adherence and better patient outcome, we propose that two possible solutions: have healthcare providers increase referrals to podiatry and reinstate the practice of having [REDACTED] nursing and medical assistant staff perform the annual foot examination that includes inspecting the patient's skin, performing the monofilament test, and checking the patient's pedal pulses.

We note that increasing podiatry referrals are not the silver bullet to magically cure this situation. There is only one podiatrist works at [REDACTED]. From 10/2013 to 06/2014, the [REDACTED] podiatrist had 3,192 patient encounters that included but was not limited the annual diabetic foot examination and documented as the Health Resources and Services Administration (HRSA)'s Lower Extremity Amputation Prevention (LEAP) form (see Appendix 4). The single podiatrist does not have the capacity to perform the annual diabetic foot examination for all of [REDACTED] diabetic patients (or even the 12,651 patients seen in nine months). Furthermore, the [REDACTED] podiatrist commented that the [REDACTED] providers are requesting podiatry referrals but often the patient does not show up to podiatry. This speaks to the difficulty of the referrals for [REDACTED] patient population for various reasons: patients can't take off more time from work for another office visit, don't have money for copay, lack transportation to the clinic office, and etc.

Thus, the project ultimately recommends that ██████ resurrect its previous policy that the nursing staff and medical assistants perform the annual diabetic foot examination to observe the patient's skin, perform the Semmes Weinstein monofilament for peripheral neuropathy, and palpate the patient's pedal pulses. According to ██████ Chief Medical Officer Dr. ██████, the ██████ nursing staff and medical assistants are trained in monofilament testing. They performed the examination before ██████ had hired a podiatrist. ██████ ██████, DPM, noted, "The use of the monofilament, once restricted to foot specialty centers, is becoming much more common. It's often the only testing device necessary... anticipates the day that the monofilament will be given to all newly diagnosed diabetic patients so they can have a family member help them perform the screening" (6). The HRSA website provides training information for annual diabetic foot examination including monofilament testing. This report suggests that as the medical assistant obtains the patient's vitals and brings into the room, then the medical assistant should ask the patient to take off his/her shoes (see Appendix 5). This sets the expectations that ██████ staff will examine and monitor the diabetic patient's complications from diabetes. Also, if needed, the provider can look at the patient's foot during the patient encounter for ulceration, check pedal pulses, and if needed, perform a sensory test.

Conclusion

In the best possible combination of motivated compliant patient and an encouraging healthcare provider partner, the treatment of diabetes remains an ongoing battle with regular blood testing, an annual eye exam, blood pressure monitoring and an annual diabetic foot examination. This report's presentation placed the strongest recommendation to ██████ to increase the Measure #163 value with the goal of having all of ██████ diabetic patients receiving at least one

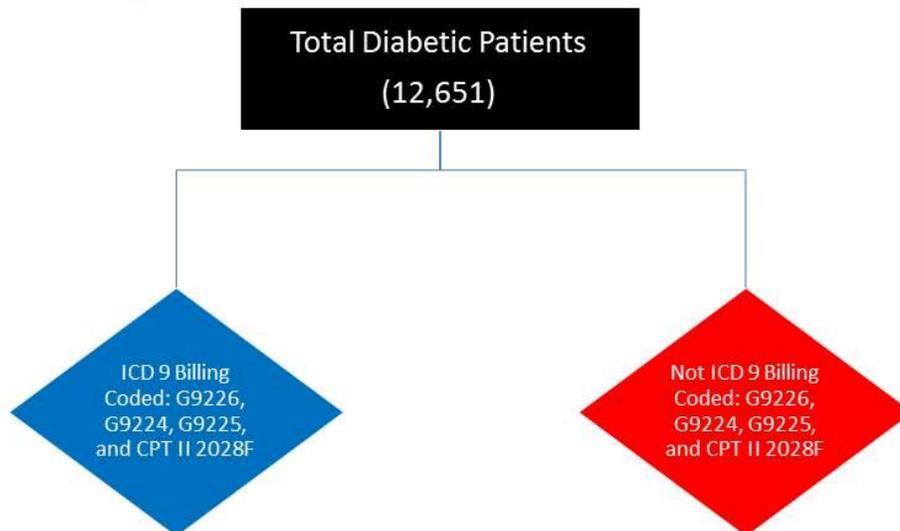
annual diabetic foot examination that includes checking the patient's skin, performing the monofilament exam for peripheral neuropathy, and palpating the pedal pulses. [REDACTED] should increase its PQRS Measure #163 to not have CMS reduce its reimbursement payments and ultimately to improve diabetic patients' morbidity and mortality.

References

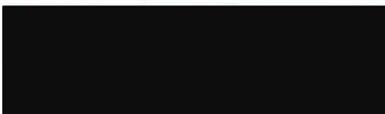
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6. Diabetes Forecast. (June 1997, Page 29)

Appendix 1: Diabetic Patient Separation and Randomization by ICD 9 Billing Code for Diabetic Foot Examination.

Methodology: Randomization by ICD 9 Billing Code for Diabetic Foot Exam

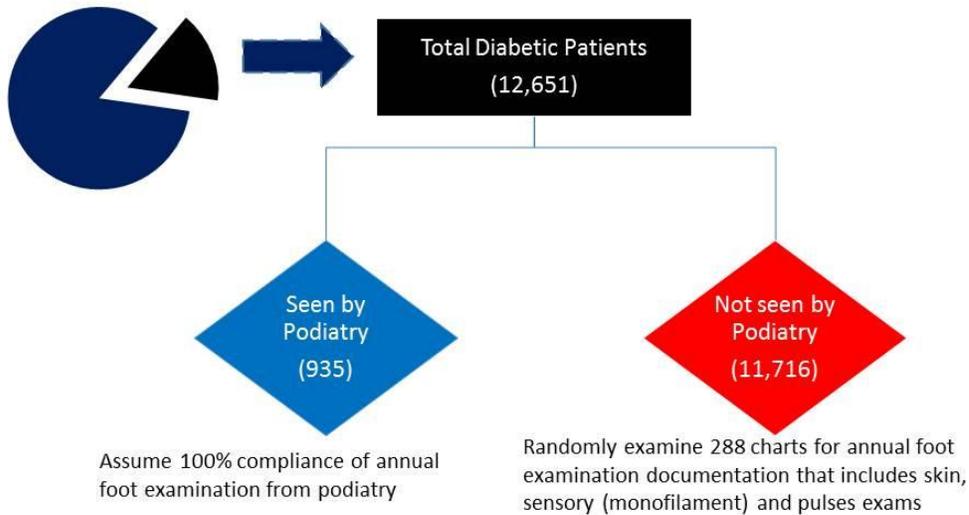


* No evidence of use of ICD 9 Codes: G9226, G9224, G9225, and CPT II 2028F in Nextgen in time frame



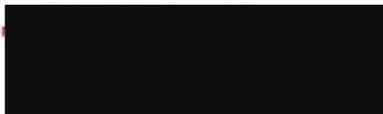
Appendix 2: [REDACTED] diabetic population separated into seen podiatry and not seen podiatry. Of those that have not seen podiatry (11,716 patients), 288 patient charts were randomly selected to investigate the documentation of diabetic foot examination outside of podiatry.

Methodology: Randomization by Podiatry Visit



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Appendix 4: [REDACTED] Podiatrist patient encounters from 10/2013 to 06/2014

Recommendations: Podiatry is not the silver bullet



Dr. Uribe Patient Encounters								
10/13	11/13	12/13	01/14	02/14	03/14	04/15	05/14	06/14
356	274	303	361	339	349	415	428	367

Total patient encounters 3,192 between 10/13 to 06/14

- Not enough referrals?
- Podiatry referrals does guarantee a foot examination
 - Nextgen glitch: Unable to obtain referrals information
 - Future Research



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Appendix 5: Posters for clinic rooms to emphasize that the medical assistants will perform annual foot examination for diabetic patients.

Recommendations: Set the Expectations



If you are Diabetic
please
remove your shoes & socks

CentroMed Self-Management Care for People with Diabetes

Tests and Exams I Need	How Often do I Need Them?
Hemoglobin A1c (HbA1c) (measures average blood sugar for past 3 months)	Every 3 months
Foot exam by foot doctor	Once a year
Foot inspection by nurse or doctor	Each visit
Dilated eye exam by an eye specialist	Once a year
Dental exam	Once a year
Blood Pressure Normal (at or below 130/80)	Each visit
Lipid profile blood test (Cholesterol, HDL, LDL, Triglycerides)	Once a year
Kidney function test (Creatinine, microalbumin)	Once a year
Blood sugars (using glucometer machine)	As directed by my doctor

Vaccines I Need

Flu Shot	Once a year during Flu season
Pneumonia Shot	One Time (repeat if first vaccine was given more than 5 years ago or before age 65)

Please discuss Diabetes self-management with your nurse or provider. Thank you.

Si es Diabético,
por favor
quítese los zapatos y calcetines



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