



# COMMONWEALTH of VIRGINIA

## *Department of Medical Assistance Services*

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DIRECTOR


November 15, 2010

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### MEMORANDUM

TO: The Honorable Charles J. Colgan  
Chairman, Senate Finance Committee

The Honorable Lacey E. Putney  
Chairman, House Appropriations Committee

FROM: Gregg A. Pane, MD, MPA 

SUBJECT: Report on Medicaid Coverage of Podiatry Services

Item 297 (OOO) and (KKKK) of the 2010 Appropriations Act requires the Department of Medical Assistance Services to provide a report on Medicaid coverage of podiatry services no later than November 15 to the Chairmen of the House Appropriations and Senate Finance Committees. The report addresses the following topics: 1) podiatry services in general, 2) Medicaid podiatry services in Virginia and in other states, 3) data from another state that briefly eliminated coverage of podiatry services, and 4) the impact on Medicaid of eliminating podiatry services. I have enclosed for your review the report for 2010.

Should you have any questions or need additional information, please feel free to contact me at (804) 786-8099.

Enclosure

Cc: The Honorable William A. Hazel, Jr., M.D., Secretary of Health and Human Resources

# **Report on Medicaid Coverage of Podiatry Services**



**Virginia Department of Medical Assistance Services**

**November 2010**

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## **Executive Summary**

The 2010 General Assembly, in response to a state budget shortfall, proposed the reduction or elimination of various Medicaid services in order to cut costs. As part of this effort, the General Assembly directed the Department of Medical Assistance Services (DMAS) to amend the State Plan for Medical Assistance to remove coverage for services provided by podiatrists on July 1, 2011. The General Assembly also directed DMAS to “review available data from other state Medicaid programs that have recently eliminated coverage of podiatry services and evaluate the impact on other Medicaid costs of eliminating this service”. This directive is provided in Attachment 1.

The General Assembly also indicated that if the Federal Medical Assistance Percentage under the American Recovery and Reinvestment Act was extended through June 30, 2011, the Governor had the authority to direct how the various reductions in appropriations (such as the removal of services provided by podiatrists) were restored. At the time this report was written, the funding for podiatry services had not been restored. DMAS estimated that eliminating services provided by podiatrists would save the state \$430,950 in General Funds.

The General Assembly’s directive calls for the removal of Medicaid coverage of a type of provider (podiatrists)—not the services themselves. The services currently provided by podiatrists can be provided by orthopedists or other providers. In practice, however, most of the primary services provided by podiatrists would not be provided by other medical professionals.

Podiatrists provide essential foot care to diabetics and other patients at risk for lower extremity complications (LECs). This primary care plays a critical role in preventing foot ulcers, which, if left untreated, can lead to greater complications and even amputations. Eliminating coverage of services provided by podiatrists might save a little money in the short run, but treating the resulting complications would undoubtedly lead to higher costs for the Medicaid program in the long run.

This report is being submitted to the Chairmen of the House Appropriations and Senate Finance Committees in response to the General Assembly’s directive. The report addresses the following topics: 1) podiatry services in general, 2) Medicaid podiatry services in Virginia and in other states, 3) data from another state that briefly eliminated coverage of podiatry services, and 4) the impact on Medicaid of eliminating podiatry services.

## Podiatrists and Podiatry Services

Podiatry services treat conditions affecting the foot and ankle. Both podiatrists and orthopedists are qualified to provide podiatry services. However, these professions receive different training, different degrees, and the focus of their practice is generally different.

Podiatrists usually complete four years of college, and four years of podiatric medical college that focuses exclusively on the foot. They complete two or three years of hospital residency training and receive a doctor of podiatric medicine (DPM) degree. Some complete four additional years of advanced training as podiatric surgeons. Podiatrists are licensed in all 50 states. Their scope of practice varies by state, but all states permit treatment of the foot and 44 states permit treatment at or above the ankle. Doctors of podiatric medicine make independent medical judgments, prescribe medications and perform surgery.<sup>1</sup>

The Virginia Department of Health Professions and the Board of Medicine regulate the practice of podiatry. In order to obtain a license in Virginia, a podiatrist must be a graduate of an institution approved and recommended by the Council on Podiatry Education of the American Podiatry Medical Association or any other organization approved by the Board of Medicine. Absent graduation from an approved school, a podiatrist must satisfy a separate set of strict requirements set by the Board of Medicine. The applicant for licensure must also provide evidence of having completed one year of satisfactory postgraduate training as an intern or resident in an approved hospital or health care facility, and have passed an approved examination.<sup>2</sup>

Any podiatrist licensed to practice in Virginia (or in another state in which he/she practices) may apply to participate in the Virginia Medicaid program. As of September 2010, 566 podiatrists were enrolled in the Virginia Medicaid program. Of these, 312 billed DMAS for services during fiscal year 2008.

By contrast, orthopedic surgeons receive general training on the whole human body. They complete four years of undergraduate education, followed by four years of medical school, followed by five years of an orthopedic residency program and receive a medical doctor (M.D.) degree. They may choose to specialize in a particular area after this, however, the American Academy of Orthopaedic Surgeons reports that only ten percent of orthopedists specialize in the foot and ankle. Far greater numbers specialized in other areas such as the knee, shoulder, hip and total joint replacement. Very few orthopedists (1%) report specializing in rehabilitation, prosthetics and orthotics.<sup>3</sup>

The exclusive focus of podiatrists on problems of the foot, coupled with the relatively small number of orthopedists that specialize in this area, means that podiatrists are the principal providers of care for the feet. The primary foot care services required by diabetics and other patients with foot problems are much more likely to be provided by podiatrists. Services such as

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<sup>1</sup> Virginia Podiatric Medical Association. <http://vpma.org>

<sup>2</sup> Department of Health Professions, Board of Medicine web site:  
<http://www.dhp.state.va.us/medicine/leg/Medicine%2008042010.doc>

<sup>3</sup> Academy of Orthopaedic Surgeons: [http://www.aaos.org/research/stats/specialty\\_areas.pdf](http://www.aaos.org/research/stats/specialty_areas.pdf)

debridement, trimming and excision of nails, and treatment of foot ulcers are critical to preventing more serious problems that can eventually lead to amputations in this population.

## **Medicaid Services Provided by Podiatrists**

### Federal guidelines

Under federal law, podiatry services are considered optional Medical services. (In practice, this distinction applies only to the adult Medicaid population, since states are required to provide any medically necessary service to children through the Early, Periodic, Screening, Diagnosis, and Treatment (EPSDT) program.) The vast majority of states have chosen to cover podiatry services in their Medicaid programs. However, any time states experience budgetary shortfalls, optional Medicaid services come under special scrutiny as they search for ways of reducing expenditures.

### Virginia Medicaid Podiatry Services

The Virginia Medicaid program covers podiatry services that are “reasonable, and necessary diagnostic, medical, surgical treatment of disease, injury, or defects of the human foot.” The podiatrist must certify that services they provide are medically necessary. All covered services must be within a podiatrist’s scope of practice as defined by State law.

By and large, the care provided by Medicaid podiatrists consists of office visits or consultations and primary services consisting mostly of debridement, excision, and trimming of nails. (For a list of the most common services provided by podiatrists, please see Attachment 2.) Podiatrists also perform some surgery, but this constitutes a very small percentage of Medicaid procedures. Even the procedures that address specific conditions of the foot can be (and are) provided by other specialists such as orthopedists. However, there are many primary care procedures performed by podiatrists that Medicaid patients would have a hard time obtaining from other providers. [As a point of clarification, reimbursement for podiatry services is driven by the type of procedure—not the type of provider. Thus, the cost to DMAS is the same whether a podiatrist or an orthopedist provides the service.]

Routine podiatric services (such as trimming of nails) are covered by Medicaid when patients have certain underlying medical conditions such as diabetes which makes them vulnerable to various complications. For patients that have diabetes, this routine foot care plays a critical role in preventing ulcers and even greater complications such as amputations. Podiatrists are responsible for providing vital primary care to these patients. Eliminating Medicaid coverage of podiatrists would undoubtedly make it much harder for many Medicaid patients to receive the primary foot care which would help prevent more costly and even life-threatening conditions.

The podiatry services are provided mostly to adults (86%) and are provided to individuals in intermediate care facilities, nursing facilities, and those that are in assisted living or that are enrolled in one of the home and community-based waivers. Roughly a third of Virginia Medicaid podiatry expenditures are for the cost sharing obligations for individuals eligible for both Medicaid and Medicare (dual-eligibles).

## Medicaid Podiatry Services in Other States

Even though they are considered optional services under the Medicaid program, the vast majority of states cover podiatry services for their adult Medicaid recipients. As of August 2010, it appears that only Alabama, Alaska, Arizona, California, Michigan and Wyoming do not cover podiatry services. Alabama, Alaska, and Wyoming have reportedly not covered podiatry services going back to at least 2003.<sup>4</sup> California stopped providing coverage of podiatry services in FY 2010 and Michigan eliminated podiatry services on July 1, 2009.<sup>5</sup> Arizona eliminated podiatry services on October 1, 2010.<sup>6</sup>

It is telling that several states which have eliminated coverage of Medicaid podiatry services in the past have reinstated coverage of those services, usually within one year. Connecticut discontinued podiatry services in 1991, but reinstated them in 1992.<sup>7</sup> In Texas, the Legislature voted to cut podiatry services in the 2003 session, but voted to restore them the next legislative session.<sup>8</sup> Michigan cut services in 2004, restarted coverage in 2005, and then cut services again in 2009 due to severe budget constraints.<sup>9</sup> Although Michigan's fiscal year 2011 budget has not been finalized, the Michigan Legislature voted to provide funding in FY 2011 to restore podiatry services.<sup>10</sup> Illinois eliminated coverage of Medicaid podiatry services in 1995, but resumed coverage again in 2000.<sup>11</sup>

Oregon provides another example of the importance assigned to podiatry services by a state Medicaid program. In Oregon, Medicaid coverage of services is determined by a prioritized list of paired health conditions and treatments that are ranked in order of their perceived clinical effectiveness and value to society. Greater emphasis is placed on preventive services and chronic disease management, reflecting the state's conclusion that providing health care before reaching a crisis will prevent avoidable morbidity and mortality. Under this system, the Legislature decides how many services on the prioritized list to include in the health care budget each year. The current list has a total of over 700 services, and the Oregon Medicaid program covers the first 503 services on the list. Interestingly, preventive foot care in high risk patients is currently number 172 on this prioritized list of 503 services funded by Medicaid.<sup>12</sup>

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<sup>4</sup> Kaiser Family Foundation. Kaiser Medicaid Benefits: Online Database:

<http://medicaidbenefits.kff.org/service.jsp?gr=off&nt=on&so=0&tg=0&yr=4&cat=6&sv=31>

<sup>5</sup> Kaiser Commission on Medicaid and the Uninsured. Results from a 50-State Medicaid Budget Survey for State Fiscal Years 2009 and 2010. <http://www.kff.org/medicaid/7985.cfm>

<sup>6</sup> Arizona Health Care Cost Containment System. Provider Notification.

[http://www.azahcccs.gov/reporting/Downloads/Legislation/2010seventh/BenefitChanges\\_10-1-10.pdf](http://www.azahcccs.gov/reporting/Downloads/Legislation/2010seventh/BenefitChanges_10-1-10.pdf)

<sup>7</sup> Cohen, Robin. Connecticut State Senate Report. Costs Associated with Eliminating Optional Medicaid Services. September 25, 2002. <http://www.cga.ct.gov/2002/olrdata/hs/rpt/2002-R-0740.htm>

<sup>8</sup> Kaiser Commission on Medicaid and the Uninsured. Results from a 50-State Medicaid Budget Survey for State fiscal years 2004 and 2005; and State Fiscal Years 2005 and 2006. <http://www.kff.org/medicaid/7190.cfm>

<sup>9</sup> Ibid

<sup>10</sup> Michigan Medicaid staff. 9-11-10.

<sup>11</sup> Virginia Podiatric Medical Association

<sup>12</sup> Oregon Health Plan. Prioritized List. <http://www.oregon.gov/DHS/healthplan/priorlist/main.shtml>

The large number of states that cover optional Medicaid podiatry services, and the number of states which have reinstated coverage of podiatry services very soon after eliminating coverage, and the high priority assigned to podiatry services in Oregon, are strong indicators that most states have concluded that eliminating these services would actually lead to increased costs in their Medicaid programs. This conclusion is supported by recent research.

### **Data from States that Eliminated Coverage of Podiatry Services**

States which have eliminated Medicaid coverage of podiatry services, only to restore it soon afterward, have cited concerns that eliminating podiatry services would actually end up costing the state more in the long run. The concern is that eliminating primary services provided by podiatrists for diabetic patients will lead to complications such as foot ulcers and amputations which will result in a net increase in costs for the Medicaid program.

In 2003, the Texas General Assembly passed legislation with several cost-cutting measures, including the elimination of Medicaid coverage of podiatry services. The state expected to save approximately three million dollars by eliminating podiatry services. A Texas A & M University Health Sciences Center study analyzed the impact of eliminating Medicaid podiatry services for the Texas State Public Health Committee of the Legislature. This study was undertaken to explain the repercussions of the proposed 2003 Medicaid reductions in podiatric foot care for individuals with diabetes. The study concluded that the number of lower leg amputations resulting from the elimination of podiatric care would cost the state \$210 million.<sup>13</sup>

While DMAS was not able to obtain data from other states on the impact of eliminating podiatry services in those states, the general studies cited below provide additional evidence that eliminating coverage of podiatry services would likely increase costs in the Medicaid program.

### **Other Studies Related to Coverage of Podiatry Services**

Two other studies obtained by DMAS emphasize the importance of podiatric foot care in preventing serious foot problems in individuals with diabetes. These studies highlight findings indicating that primary foot care provided to high risk patients can produce measurable decreases in subsequent adverse outcomes such as amputations. While one study found that multidisciplinary care led to the greatest improvements in health outcomes, care provided exclusively by podiatrists also improved outcomes. Furthermore, it appears that these improvements in outcomes can be achieved with a relatively small amount of primary care. A brief summary of the findings of these studies is provided below.

#### Thomson Reuters APMA Study

The American Podiatric Medical Association (APMA) recently released the results of a new study it sponsored showing that essential foot care provided by a podiatrist has been statistically proven to reduce hospitalization and amputation in adults with diabetes. The study was

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<sup>13</sup> Texas A & M University, Health Science Center Study. Implications of Medicaid Cuts on Podiatric Foot Care for Diabetics in Texas. Presented to the Public Health Committee of the Texas State Legislature. 2004.



conducted by Thomson Reuters and was presented to the APMA's annual scientific meeting in July 2010.<sup>14</sup>

The researchers found that, for diabetic patients, having at least one pre-ulcer visit with a podiatrist was associated with a nearly 29 percent lower risk of amputation and a 24 percent lower risk of hospitalization. A summary of the study findings is provided in Attachment 3.

#### Duke University Study

A study conducted by researchers at Duke University examined Medicare claims to determine the effectiveness of receiving care from a combination of a podiatrists and other and lower extremity clinician specialists on diabetes-related lower extremity amputations. It found that persons visiting a podiatrist and another lower extremity complication specialist (general surgeons, orthopedic surgeons, diagnostic radiologists, etc.) within a year before developing complications were between 31 percent and 77 percent as likely to undergo amputations compared to individuals visiting other health professionals. While the best results were obtained by a comprehensive team of providers, the study also found that patients with severe lower extremity complications who were seen exclusively by a podiatrist had a lower risk of undergoing amputation.<sup>15</sup>

### **Impact on Medicaid of Eliminating Podiatry Services**

The General Assembly's directive calls for the elimination of Medicaid coverage of a type of medical provider (podiatrists), not specific services. As discussed above, other medical professionals, such as orthopedists, can provide this foot care (and Medicaid reimburses the same amount for these procedures whether they are performed by a podiatrist or an orthopedist). However, in practice, many of the primary services are provided almost exclusively by podiatrists and many of these services would simply not be provided by other medical professionals. Thus, the General Assembly's directive would lead to a severe reduction in, if not outright elimination of, specific primary services for certain Medicaid recipients.

To illustrate this point, it may help to look at how the elimination of services provided by podiatrists would affect Medicaid recipients in nursing homes. Many, if not most, nursing homes make arrangements for a podiatrist to provide routine foot care to their residents which have underlying conditions such as diabetes. If Medicaid stopped reimbursing these podiatrists, it would be very hard for these patients to obtain this routine foot care. Nurses, by law, cannot provide routine foot care to patients with diabetes. Orthopedists are not likely to go to the nursing home to provide this care. In order to obtain this care, patients would have to be transported to the office of an orthopedist. Even if DMAS could find enough orthopedists willing to provide this primary foot care to these patients, it would be very disruptive for the patients. The added cost of the transportation alone would mean that the state would be paying

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<sup>14</sup> Gibson, Teresa B. et. al. Thomson Reuters study conducted for the American Podiatric Medical Association: Podiatrist Care and Outcomes for Patients with Diabetes and Foot Ulcer. July 2010.

<sup>15</sup> Sloan, Frank; Feinglos, Mark; Grossman, Daniel. Receipt of Care and Reduction of Lower Extremity Amputations in a Nationally Representative Sample of the U.S. Elderly. August 16, 2010. Health Services Research. DOI: 10.1111/j.1475-6773.2010.01157.x

more, not less, for podiatry services. In practice, many patients might not receive the routine care that might help identify and prevent medical problems that lead to amputations which would end up costing the state many times what it hopes to save by eliminating podiatrist coverage.

The discussion of Medicaid services provided by podiatrists is essentially a discussion about foot care provided to Medicaid individuals with diabetes. This is because many of the “routine” services provided to Medicaid recipients by podiatrists are only covered because the recipient has an underlying condition such as diabetes. What might be considered routine care for a healthy individual can be critical for patients with diabetes.

Diabetic neuropathy leaves the foot vulnerable to complications which can eventually lead to amputation. Diabetes exacts a very heavy lower extremity-related toll on individuals with the disease.<sup>16</sup> An article on preventing amputation in individuals with diabetes in the journal *Lower Extremity Review* includes the following statistics which illustrate some of this toll exacted by the disease:<sup>17</sup>

- Diabetes mellitus and its complications are the sixth leading cause of death in the U.S.
- Infected foot ulcers are the most frequent admitting diagnosis for hospitalization of patients with diabetes.
- There are more than 90,000 lower extremity amputation procedures performed on patients with diabetes in the U.S. annually
- The direct cost of an amputation associated with the diabetic foot is estimated to be between \$30,000 and \$60,000.
- Three years of subsequent care for individuals whose ulcer has healed without the need for amputation has been estimated to cost between \$16,000 and \$27,000. The corresponding cost for someone who eventually needs an amputation ranges from \$43,000 to \$63,000, mainly due to the increased need for home care and social services
- The mortality rate after amputations is about 40 percent at one year, and 80 percent at five years

The good news is that some of this toll can be avoided with proper primary care. Comprehensive foot care programs can reduce amputation rates by 45 to 85 percent. Podiatrists play a very important role in providing this primary care.

According to the Virginia Podiatric Medical Association (VPMA), the average cost of a major amputation with prosthetic is \$70,450. The lifetime cost of just one amputation is \$500,000. Eighty-five percent of non-traumatic lower extremity amputations are preventable by yearly podiatric exams.<sup>18</sup>

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<sup>16</sup> Hinkes, Mark, DPM. Diabetes: Taking steps to prevent amputation. *Lower Extremity Review*. August 2009

<sup>17</sup> Ibid.

<sup>18</sup> Virginia Podiatric Medical Association. Presentation materials.

These statistics demonstrate the impact that diabetes can have on individuals when adequate foot care is not available. The cost of providing this primary care is very small compared to the costs associated with amputations.

DMAS estimated that the elimination of services provided by podiatrists would result direct savings of \$430,950 in General Funds. Research shows that providing basic podiatric care, as the Virginia Medicaid program does currently, almost certainly helps prevent the need to provide much more costly care down the road. The statistics above indicate that preventing a few amputations would pay for everything Medicaid currently spends on podiatric care.

## **Conclusion**

The research that DMAS conducted on podiatry services appears to indicate that eliminating coverage of services provided by podiatrists would end up costing the state more in the long run. Most states cover podiatry services in their Medicaid programs, and the few that have eliminated coverage have usually restored that coverage within a very short time. Podiatrists provide critical services to patients who need that care in order to avoid more serious complications. If podiatrists are not paid for services provided to Medicaid patients, these individuals will probably not be able to receive these services from other Medicaid providers. This will eventually increase costs in the Medicaid program. For this reason, DMAS recommends that the funding for services provided by podiatrists be restored so that Medicaid recipients can continue to receive the foot services that play a vital role in preventing serious complications.

## **Attachment 1**

### **2010 Acts of Assembly Chapter 874, Item 297**

OOO. The Department of Medical Assistance Services shall amend the State Plan for Medical Assistance to remove optional coverage for services by providers enrolled as podiatrists. The department shall implement this change effective July 1, 2011, and prior to the completion of any regulatory process undertaken in order to effect such change. The department shall review available data from other state Medicaid programs that have recently eliminated coverage of podiatry services and evaluate the impact on other Medicaid costs of eliminating this service. The department shall report its findings no later than November 15, 2010 to the Chairmen of the House Appropriations and Senate Finance Committees. If there is an extension through June 30, 2011 of increased Federal Medical Assistance Percentage under the American Recovery and Reinvestment Act (P.L. 111-5), the reduction in this paragraph shall not become effective. This contingent appropriation is subject to the provisions of paragraph KKKK. in this Item.

KKKK. The Governor shall have authority to direct that the reduction or funding, contingent on an extension through June 30, 2011, of increased Federal Medical Assistance Percentage, be imposed, either partially or in full, as he deems necessary in order to ensure that the costs to the Commonwealth of contingent restorations in various items within this act do not exceed the amount of funding available from an extension of the increased Federal Medical Assistance Percentage.

## Attachment 2

### Most Common Podiatry Services Covered by the Virginia Medicaid Program

#### EVALUATION AND MANAGEMENT SERVICES

- 99202 -Office or other outpatient visit for the evaluation and management of a new patient, which requires these three key components: an expanded problem focused history; an expanded problem focused examination; and straightforward medical decision making
- 99203 -Office or other outpatient visit for the evaluation and management of a new patient, which requires these three key components: a detailed history; a detailed examination; and medical decision making of low complexity
- 99212 -Office or other outpatient visit for the evaluation and management of an established patient, which requires at least two of these three key components: a problem focused history; a problem focused examination; straightforward medical decision making
- 99213 -Office or other outpatient visit for the evaluation and management of an established patient, which requires at least two of these three key components: an expanded problem focused history; an expanded problem focused examination; medical decision making of low complexity
- 99243 - Office consultation for a new or established patient, which requires these three key components: a detailed history, a detailed examination; and medical decision making of low complexity
- 99307 -Subsequent nursing facility care, per day, for the evaluation and management of a patient, which requires at least two of these three components: a problem focused interval history; a problem focused examination; and straightforward medical decision making
- 99308 -Subsequent nursing facility care, per day, for the evaluation and management of a patient, which requires at least two of these three components: an expanded problem focused interval history; an expanded problem focused examination; and medical decision making of low complexity
- 99348 - Home visit for the evaluation and management of an established patient, which requires at least two of these three key components: an expanded problem focused interval history; an expanded problem focused examination; and medical decision making of low complexity

#### **SURGERY (Services are limited strictly to treatment of foot/ankle)**

- 10060 -Incision and drainage of abscess (eg, carbuncle, suppurative hidradenitis, cutaneous or subcutaneous abscesses, cyst, furuncle, or paronychia); simple or single
- 10061 - Incision and drainage of abscess (eg, carbuncle, suppurative hidradenitis, cutaneous or subcutaneous abscesses, cyst, furuncle, or paronychia); complicated or multiple
- 11040 - Debridement; skin, partial thickness

- 11041 – Debridement; skin, full thickness
- 11042 – Debridement; skin, and subcutaneous tissue
- 11055 - Paring or cutting of benign hyperkeratotic lesion (eg, corn or callus ); single lesion.
- 11056 - Paring or cutting of benign hyperkeratotic lesion (eg, corn or callus ); two to four lesions
- 11719 - Trimming of nondystrophic nails, any number
- 11720 - Debridement of nail(s) by any method(s); one to five
- 11721 - Debridement of nail(s) by any method(s); six or more
- 11730 - Avulsion of nail plate, partial or complete, simple; single
- 11750 - Excision of nail and nail matrix, partial or complete (eg, ingrown or deformed nail) for permanent removal;
- 17110 - Destruction by any method of flat warts, molluscum contagiosum, or milia; up to 14 lesions
- 20550 - Injection, tendon sheath, ligament, trigger points or ganglion cyst
- 28285 - Hammertoe operation; one toe (eg, interphalangeal fusion, filleting, phalangectomy)
- 28296 - Hammertoe operation; with metatarsal osteotomy (eg, Mitchell, Chevron or concentric procedures)

## **RADIOLOGY PROCEDURES**

- 73620** - Radiologic examination, foot; anteroposterior and lateral views
- 73630** - Radiologic examination, foot; complete, minimum of three views

## Attachment 3

### Podiatrist Care and Outcomes for Patients with Diabetes and Foot Ulcer<sup>1</sup>

Teresa B Gibson, PhD; Vickie R. Driver, MS DPM, FACFAS; James Wrobel, DPM, MS (presenter); James R. Christina, DPM; Erin Bagalman, MSW; Roy DeFrancis, DPM; Mathew G. Garoufalis, DPM; Ginger S. Carls, PhD; Sara S. Wang, PhD

#### Abstract

The purpose of this study was to examine whether outcomes of care (amputation and hospitalization) differ between patients with diabetes who received care from podiatrists and those who did not.

Adult patients with diabetes (ICD-9-CM: 250.xx) and a diagnosis of foot ulcer (ICD-9-CM: 707.00, 707.06, 707.07, 707.09, 707.10, 707.12, 707.13, 707.14, 707.15) were found in the *Thomson Reuters MarketScan® Research Databases*, 2005–2008. The date of the first claim with evidence of foot ulcer was assigned as the index date. Patients with previous evidence of foot ulcer or amputation were excluded. Propensity score matching (PSM) was used to create a matched sample of patients with diabetes and podiatry visits and patients with diabetes and no podiatrist visits, based on sociodemographic variables, plan type, general health status, adherence to diabetes medications, and risk factors for amputation (patient-level and foot-level). The sample comprised 20,330 patients aged 65+ (Medicare eligible patients with employer-sponsored supplemental insurance) and 11,766 patients aged <65 (non-Medicare eligible commercially insured patients). Patient experience was available for up to 60 months. Cox proportional hazard models estimated the hazard of inpatient hospitalization, lower extremity amputation, and major amputation (i.e., below the knee or higher), controlling for the covariates in the PSM.

Care by podiatrists, defined as at least 1 pre-ulcer podiatry visit, was associated with lower hazards of hospitalization, amputation, and major amputation in the Medicare population. Results were similar in the non-Medicare population, where the difference in major amputation was not statistically significant ( $P > 0.1$ ). Hazard ratios (HR) and 95% confidence intervals (CI) are presented in the table below. Results were consistent when care by podiatrists was defined as at least 3 pre-ulcer podiatry visits.

	HR	95% CI
<b>Hospitalization</b>		
Medicare	0.910	0.873–0.949
Non-Medicare	0.825	0.777–0.876
<b>Amputation</b>		
Medicare	0.820	0.707–0.952
Non-Medicare	0.852	0.725–1.002
<b>Major Amputation</b>		
Medicare	0.766	0.585–1.002
Non-Medicare	0.771	0.547–1.086

In a population of adults with diabetes and foot ulcer, care by podiatrists appears to prevent or delay lower extremity amputation and hospitalization.

### **Objective**

To examine whether outcomes of care (amputation and hospitalization) differ between patients with diabetes and foot ulcer who received care from podiatrists prior to foot ulcer and those who did not receive care from podiatrists prior to foot ulcer.

### **Methods**

#### **Data Source**

*Thomson Reuters MarketScan® Research Databases, 2005–2008*

- Fully adjudicated health insurance claims (inpatient medical, outpatient medical, and outpatient pharmacy) linked to enrollment and demographic data
- Commercial Database
  - ❑ Enrollees with employer-sponsored insurance from large and medium-sized firms
- Medicare Supplemental Database
  - ❑ Medicare beneficiaries (65+) with employer-sponsored supplemental insurance

#### **Patient Selection**

- Inclusion Criteria
  - ❑ Patients had to have a diagnosis of diabetes on a medical claim.
    - Diagnosis of 250.xx must have occurred on at least one inpatient or two outpatient claims separated by 30+ days.
    - Claims for diagnostic procedures (e.g., laboratory tests) were excluded.
  - ❑ Patients had to have a diagnosis code or procedure code indicating foot ulcer on a medical claim.
    - At least one claim with a diagnosis or procedure code indicating foot ulcer
    - The date of the first claim with evidence of foot ulcer was the index date for each patient.
  - ❑ Patients had to be age 18 or older on the index date.
  - ❑ Provider specialty coding (i.e., podiatrist care or other provider type) must have been available on the claims.
  - ❑ Patients must have been continuously enrolled with medical and outpatient prescription drug coverage in the 12 months before the index date.
- Exclusion Criteria
  - ❑ Evidence of foot ulcer during the 12-month pre-index period
  - ❑ Evidence of amputation during the 12-month pre-index period
  - ❑ ICD-9-CM and CPT codes available from authors



## **Variables**

- Outcome Variables
  - ❑ Time from date of first evidence of foot ulcer until each event was measured in days for three outcomes:
    - Lower extremity amputation (major and/or minor)
    - Major amputation (below the knee or higher)
    - Hospitalization
    - Key Explanatory Variable
  - ❑ Patients were classified as having at least one podiatrist visit (case) or not (comparison) during the 12 months prior to the date of the first evidence of foot ulcer.
- Control Variables
  - ❑ Control variables were measured on the index date or in the year prior to the index date (comorbidities, patient-level risk factors, foot-level risk factors, health behavior)
  - ❑ Demographic characteristics: age group and gender
  - ❑ Geography: urban residence and US Census region
  - ❑ Employment status: employee/spouse/dependent and salaried (versus hourly wage)
  - ❑ Socioeconomic status (from 2000 US Census): median household income and percentage of population aged 24+ with college degree in the patient's ZIP code of residence
  - ❑ Comorbidity: Charlson Comorbidity Index and number of psychiatric diagnosis groups
  - ❑ Patient-level risk factors: cardiovascular, nephropathy, and eye disease
  - ❑ Foot-level risk factors: peripheral arterial disease, neuropathy, foot deformity, callus, other (including cellulitis, abscess, boil, etc.)
  - ❑ Health behavior: adherence to diabetes prescriptions (i.e., medication possession ratio)
  - ❑ Plan characteristics: plan type (e.g., HMO) and firm-level proportion of patients with podiatrist visits (as a measure of generosity toward podiatric care)
  - ❑ Time: index year and months of follow-up data available

## **Analytic Approach**

- Propensity Score Matching
  - ❑ Patients receiving care from podiatrists were matched one-to-one with patients not receiving care from podiatrists using propensity score methods.
  - ❑ Logistic regression models of the probability of receipt of podiatrist care as a function of the control variables were estimated (propensity score). Patients receiving podiatrist care were matched to those who had not based on the value of the propensity score.
  - ❑ Propensity score matching was performed separately for commercially insured enrollees and Medicare eligible enrollees.
- Statistical Models
  - ❑ Cox proportional hazard models estimated the hazard of each outcome as a function of receipt of podiatry care and the control variables.

## **Sample Size**

- After all inclusion and exclusion criteria were applied, the non-Medicare sample comprised 28,796 patients; the Medicare sample comprised 35,721 patients.

### **Differences in Baseline Characteristics**

- Prior to matching, patients with podiatrist visits were significantly older and had significantly more comorbidities than patients without podiatrist visits (not shown).
- After matching, few significant differences in patient characteristics remained.

### **Limitations**

- This retrospective, observational study was based on codes of diagnoses, procedures, and provider type from healthcare administrative claims.
- The sample comprised patients with employer sponsored health insurance (alone or supplemental to Medicare); the results may not generalize to other populations.

### **Conclusions**

In a sample of commercially insured patients with diabetes and foot ulcers (non-Medicare and Medicare-eligible with employer-sponsored supplemental insurance), care by podiatrists prior to the first evidence of foot ulcer appears to prevent or delay hospitalization and amputation.

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#### Note:

1. This summary was taken from a one-page Thompson Reuters, APMA summary of the study in a PDF format. As much as possible was converted to Word format to make it easier to read. It was not possible to reproduce three of the tables in the PDF document and these have been left out of the Word summary. Those who wish to see the complete PDF with the tables can access it at the following web site:  
<http://www.apma.org/MainMenu/News/APMA-Diabetes-Study-Poster-Abstract.aspx?FT=.pdf>