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## THE CARE SPAN

# Medicare Payment Cuts For Osteoporosis Testing Reduced Use Despite Tests' Benefit In Reducing Fractures

**ABSTRACT** Bone imaging known as DXA (“dexa”)—dual energy x-ray absorptiometry of the central skeleton—is considered the “gold standard” test for osteoporosis, which affects more than fifty million Americans. The tests are associated with improved clinical outcomes through preventing bone fractures. Cuts in Medicare Part B reimbursement for the provision of this preventive imaging in a physician’s office began in 2007 and reached 56 percent below the 2006 level in January 2010. To encourage the use of DXA testing, the Affordable Care Act of 2010 provided partial relief from the cuts for two years (2010–11). Our study found that after a decade of growth, DXA testing in all Part B settings plateaued in 2007–09, resulting in 800,000 fewer tests than expected for Medicare beneficiaries—tests that might have prevented approximately 12,000 fractures. Testing declined in 2010, when the start of reimbursement relief under the Affordable Care Act was delayed, and increased outpatient testing failed to offset reduced use in physician offices. Our findings strongly suggest that the payment cuts reduced beneficiary access and that the tests were underused by elderly female Medicare beneficiaries despite strong association with fracture prevention. We recommend that Congress extend the payment relief granted under the Affordable Care Act for at least another two years.

Over the past two decades, non-invasive, reliable diagnostic tests of bone density and efficacious medications have transformed care for osteoporosis from palliative to preventive and therapeutic. The study described in this article focused on the value of bone density testing rather than on treatment of osteoporosis, a disease of porous, fragile bones characterized by reductions in bone density and quality that increase the risk of fractures. Bone density testing is used to identify people with osteoporosis or the less severe condition known as “low bone mass.” The use of bone

density testing increased when congressionally mandated standards for Medicare coverage took effect in 1998,<sup>1</sup> reducing regional discrepancies in coverage for the test.

In the United States, 52.4 million people were estimated to have osteoporosis or low bone mass in 2010,<sup>2</sup> resulting in more than two million fractures in that year alone. The estimated \$18.7 billion in direct medical costs of these fractures was largely borne by the Medicare program. Population growth is projected to increase these costs to \$25.3 billion in 2025, assuming constant rates of testing and treatment.<sup>3</sup>

However, testing rates are threatened by a

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reduction in Medicare reimbursement for the most common bone density test, dual energy x-ray absorptiometry of the central skeleton—that is, the hip, spine, and pelvis—hereafter referred to as DXA (pronounced “dexa”). DXA of the central skeleton is used to screen for and diagnose osteoporosis, predict fracture risk, and determine the need for and monitor response to treatment.

On January 1, 2011, the Affordable Care Act of 2010 removed a barrier to bone density testing, along with other preventive services, by eliminating cost sharing for beneficiaries who qualify. In response to concerns about access to testing, the act also partially restored Medicare payment for DXA during 2010 and 2011.

From 2007 to 2010 payment to physicians providing DXA tests in their offices had been reduced, reaching a nadir of 56 percent below previous rates in early 2010. The full cuts will resume in January 2012 unless Congress again intervenes. The Preservation of Access to Osteoporosis Testing for Medicare Beneficiaries Act of 2011, now pending in Congress, would extend the partial reversal in DXA payment cuts through 2013.

The Affordable Care Act also authorized an Institute of Medicine study of the ramifications of the 2007–09 cuts on access to bone density tests, to inform reconsideration of DXA reimbursement before expiration of the two-year partial restoration on December 31, 2011. However, the Department of Health and Human Services has not funded the study or contracted with the Institute of Medicine for its execution. The little evidence published to date indicates that the impact of the cuts on use became apparent in 2008.

One study reported that DXA testing rates increased annually from 2000 to 2007 and then leveled off during 2008–09 among Medicare beneficiaries with employer-sponsored supplemental insurance.<sup>4</sup> This suggests a lag in the effect of the payment cuts. Data from the Medicare Current Beneficiary Survey support that idea, showing osteoporosis screening to be higher in 2008 than 2006 among female Medicare beneficiaries age sixty-five and older.<sup>5</sup>

This survey is a poor gauge of DXA use under Part B, however, because it includes any osteoporosis test during a woman’s lifetime, such as a heel scan in a pharmacy. Moreover, the self-reported survey rates are approximately four times higher than Medicare DXA claims, despite the fact that DXA constituted more than 95 percent of all Medicare bone density claims in 2005.<sup>6</sup>

Thus, a paucity of data has, until now, prevented a clear assessment of access to DXA testing both before and after the Medicare payment cuts. To add to the confusion, although DXA was

described by the surgeon general in 2004 as the “gold standard” test for osteoporosis and fracture risk,<sup>7</sup> the Medicare Evidence Development and Coverage Advisory Committee has questioned whether bone density testing improves patients’ outcomes.<sup>8,9</sup> Policy makers need data on the value of DXA testing and trends in its use to evaluate Medicare Part B payment policy.

Our study examined the impact of the 2007–09 Medicare Part B payment cuts on DXA use in the context of historical use trends. We also analyzed whether use in the hospital outpatient setting compensated for any reductions in use in physician offices. We then addressed two fundamental gaps in information needed to guide Medicare payment policy. First, does DXA testing affect clinical outcomes—specifically, the incidence of osteoporosis-related (“fragility”) fractures? Second, has DXA been under- or overused in the target population of elderly women, both nationally and at the state level?

## Medicare Coverage And Payments

**COVERAGE** Since 1998 five categories of Medicare beneficiaries have qualified for bone density testing: estrogen-deficient women at clinical risk for osteoporosis, people with vertebral abnormalities or vertebral fracture, people with hyperparathyroidism, people receiving or expecting to receive high-dose steroids for more than three months, and people being monitored for response to drug therapy.<sup>10</sup> Among these beneficiaries, elderly women and women younger than age sixty-five who have elevated fracture risk now meet criteria for the waiving of cost sharing for DXA.<sup>11</sup> Effective January 1, 2011, the Affordable Care Act eliminated Medicare Part B cost sharing for preventive services rated at grade A or B by the US Preventive Services Task Force—that is, services recommended by the task force and receiving one of the two highest ratings based on the quality and quantity of evidence that the service provides a net benefit.

Because osteoporosis research has focused on women, who account for the majority of osteoporosis-related fractures, the task force concluded that the data on men were insufficient to support the creation of screening recommendations for them.<sup>11</sup> Few men of any age or non-elderly disabled people qualify for Medicare-reimbursed DXA testing at this time, and men continue to incur DXA cost sharing.

**PAYMENTS** Two separate legislative and regulatory actions reduced Medicare reimbursement for DXA tests conducted in physician offices during 2007–09. First, the Deficit Reduction Act of 2006 limited Part B imaging payments to hospital outpatient rates. The law addressed concerns

about the dramatic increases in overall imaging in physician offices. Although it did not specifically mention DXA, it lowered the payment for office-based DXA by 40 percent in 2007.

Second, in a routine five-year review, the Centers for Medicare and Medicaid Services changed the methods it used for calculating practice expenses and downgraded the physician work involved in interpreting the results of DXA testing by one-third, as recommended by the American Medical Association's Relative Value Update Committee.<sup>12</sup>

Over the objections of some specialty societies,<sup>13</sup> that committee discounted survey data from the American College of Radiology that supported maintaining physician work at 2006 levels. The societies also criticized the use of outdated equipment costs for DXA and the new methodology's disproportionate impact on services with high direct relative to indirect costs. Changes stemming from the five-year review were phased in from 2007 to January 1, 2010.

Between 2006 and January 1, 2010, Medicare's national average payment for DXA testing in physician offices decreased from \$139.46 to \$61.70, and the average payment for office-based vertebral fracture assessment decreased from \$39.41 to \$27.42. The latter is a software addition to DXA machines that allows imaging of the spine to detect vertebral fractures. On January 1, 2010, the average payment for DXA testing in a physician's office was 74 percent of the average hospital outpatient payment.

The Affordable Care Act specifically restored Part B payment for office-based DXA tests, during 2010 and 2011 only, to 70 percent of the 2006 level. This was one of several provisions intended to protect access to specific Medicare services. In 2011 the national payment rates for office-based DXA testing and vertebral fracture assessment were \$97.51 and \$27.86, respectively.

## Study Data And Methods

**ANALYSES** We analyzed trends in Medicare DXA claims for all Part B enrollees during 1996–2010 by service setting, to evaluate the budgetary implications of payment changes. We assessed elderly women's access to DXA testing and clinical outcomes. Using detailed claims data for 2002–08, we determined the number of unique women tested each year, cumulative testing frequency over the seven-year period, and 2008 testing rates in urban and rural areas nationwide and in the forty-eight states where rural sample size was sufficient for analysis.

We also compared clinical outcomes over three years in cohorts of women who either did or did not have DXA testing in 2005, to detect possible

differences in the rate of osteoporosis-related (“fragility”) fractures. The fracture analysis included elderly women who had no indication of fracture of any type during 2003–05 and no indication of osteoporosis in 2003–04, and who were continuously enrolled in fee-for-service Medicare during 2003–08. Women with a Medicare-reimbursed DXA test in 2005 were assigned to the DXA cohort. Of the 394,217 elderly women in our sample, 44,800 were tested in 2005, and 349,417 were not.

We identified fragility fractures during 2006–08 by the *International Classification of Diseases*, Ninth Revision, Clinical Modification (ICD-9-CM) codes for closed fractures, excluding fractures associated with cancer and trauma (Appendix 1 online).<sup>14</sup> We determined the proportion of women in each cohort with any fragility fracture during 2006–08. (Before the 2008 data were available, we conducted the same analysis for the period 2002–07, on women tested in 2004, rather than 2005.)

**DATA SOURCES** We obtained data for Medicare fee-for-service enrollees only. Enrollment information came from Medicare Trustees' annual reports.<sup>15</sup> Data on DXA use during 1996–2010 came from the Medicare Physician/Supplier Procedure Summary Master File for Current Procedural Terminology codes 77080 and 77082 (which were coded as 76075 and 76077 prior to 2007). This file is readily available and provides a long time series of aggregate service use in fee-for-service Medicare.<sup>16</sup>

Regardless of site, each fee-for-service DXA test should be associated with a payment for interpreting the results (the “professional component” service). Payment for the cost of performing the test (the “technical component” service) also may be generated. We counted the number of physician test interpretations—the number of professional-only or combined professional-technical bills, excluding denied claims. We adjusted the preliminary data file for 2010 for file completeness.

For analysis of DXA access and clinical outcomes in elderly women, we used a 5 percent sample of Medicare beneficiaries—the Medicare 5 percent limited data set standard analytic files. This allowed us to adjust national claims for sex and multiple tests per person and to evaluate rural versus urban testing rates, frequency of tests, and fracture incidence. We extrapolated our sample data, which were available for 2002–08 only, to 2009 and 2010.

## Study Results

**USE OF DXA AND IMPACT OF PAYMENT CUTS** The use rate for DXA tests under Medicare Part B, for

all beneficiaries in all settings, grew by double digits each year from a low rate in 1996 through 2002, quadrupling during the period (Exhibit 1). It peaked in 2008. The annual change in the use rate averaged 6.5 percent during 2003–06 and then slowed, ending with –4.4 percent in 2010. Had the 6.5 percent growth continued after 2006, 800,000 more DXA tests would have been performed during 2007–09, reaching a rate of 101 per thousand beneficiaries in 2009 (Exhibit 1).

The percentage of elderly women tested before and after the payment cuts paralleled changes in testing rates for the total fee-for-service population. In 2002, 11.3 percent of elderly female Medicare beneficiaries had at least one DXA test (Exhibit 2). Growth in the testing rate slowed in 2007 and 2008, plateaued in 2009, and declined by 3.7 percent in 2010, when 14.1 percent of the beneficiaries were tested.

Detailed claims data for 2002–08 showed a slight shift in age and sex distribution of DXA tests as the use of testing increased faster in men and nonelderly women than in elderly women. Use by men grew from 7.9 percent of all tests in 2002 to 10.3 percent in 2008. Use by nonelderly women grew from 6.0 percent of all tests in 2002 to 7.1 percent in 2008. Thus, elderly women represented only 82.7 percent of DXA tests in 2008.

**DXA USE IN PHYSICIAN OFFICES AND HOSPITALS** Slowing growth and subsequent decline in the use of office-based DXA testing was responsible for the observed plateau in overall testing during 2007–09 and the decrease in 2010. In the period 2005–06, the two years before DXA payment cuts, the annual change in the

testing rate for all beneficiaries averaged 8.7 percent in physician offices and 5.3 percent in hospital outpatient facilities. Following the cuts, the annual change averaged –0.7 percent and 5.6 percent during 2007–09 in physician offices and hospital outpatient facilities, respectively, and –6.1 percent and –1.3 percent in 2010.

During the period we examined, 1996–2010, testing rates in the hospital outpatient setting grew faster than rates in private offices during two intervals: 1996–2001 and 2007–10. In 1996, 80 percent of tests were conducted in physician offices. During the next several years, the portion of office-based tests dropped to about 70 percent, where it hovered for nearly a decade. By 2010 it had reached the lowest point in the study period, 66 percent (see Appendix 2 online).<sup>14</sup>

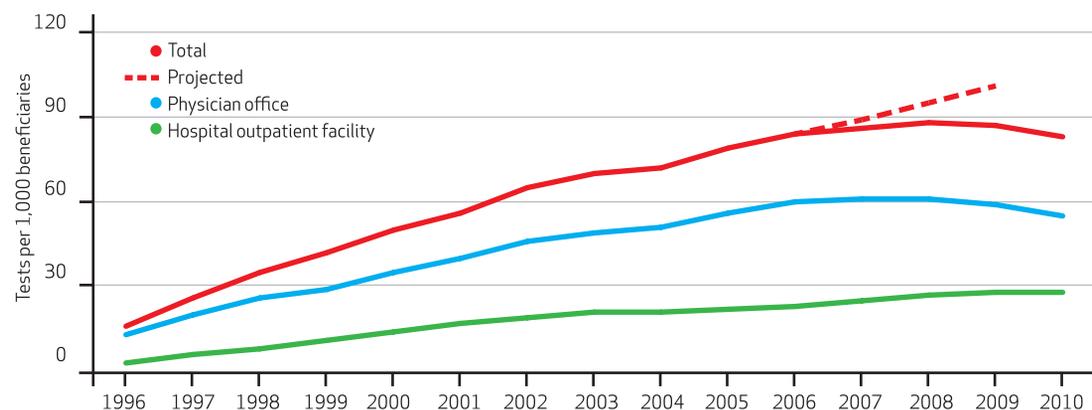
**DXA TESTING OF ELDERLY WOMEN** Nationally, the annual DXA testing rate for elderly women in Medicare Part B in all settings was about 14 percent during 2006–10. In 2008 rates varied more than twofold across states, ranging from a low of 8.1 percent in Vermont to a high of 19.0 percent in Arizona. In the country overall, and in forty-one of the forty-eight states with sufficient data, DXA use among elderly women in rural areas was significantly lower than in urban areas ( $p < 0.05$ ) (Appendix 3 online).<sup>14</sup>

Cumulative testing data for 2002–08 produced negligible evidence of overuse. During the seven-year period, 47.9 percent of elderly women did not have a single test, and 25.4 percent were tested only once (Exhibit 3).

**DXA TESTING AND CLINICAL OUTCOMES** Among elderly female Medicare beneficiaries with no recent record of osteoporosis or fracture, those

### EXHIBIT 1

Number Of DXA Tests Per 1,000 Medicare Fee-For-Service Beneficiaries, 1996–2010



**SOURCE** Authors' analysis of data from Medicare Physician/Supplier Procedure Summary Master Files, 1996–2010. **NOTES** DXA is dual energy x-ray absorptiometry of the central skeleton. Total includes claims from "all other" settings, such as independent clinic, mobile unit, and unknown setting. Beneficiaries include males and females of all ages. The projected trend line was plotted only for the 2007–09 period, when testing growth was stable in the hospital outpatient setting.

who received a DXA test in 2005 had a 19.6 percent lower fracture rate during the following three years (2006–08) than elderly women not tested in 2005—a highly significant difference ( $p < 0.0001$ ). Similarly, women who were tested in 2004 had an 18.9 percent lower fracture rate during 2005–07 than those who were not tested.

The fracture rate measured the number of women with one or more fractures over the three-year period, to avoid duplicate counting of women who incurred multiple fractures. Women who were tested in 2005 had a 6.0 percent fracture rate, compared to 7.5 percent for women who were not tested. For all of the elderly women in our sample, the fracture rate for 2006–08 was 7.3 percent.

## Discussion

This study provides data to help inform a pending congressional decision: whether or not to extend, for another two years or longer, partial relief from cuts in Medicare payments for DXA osteoporosis testing provided in physician offices. We evaluated the impact of multiple Medicare Part B payment changes on access to DXA testing and, more fundamentally, whether evidence supports improving access. That is, we asked whether DXA testing improves clinical outcomes and whether it is under- or overused.

### IMPACT OF PAYMENT CUTS ON DXA USE

► **PAYMENT CUTS:** Prior to cuts in Medicare payment, DXA testing grew continually for the period 1996–2006 in both physician office and hospital outpatient settings. Between 2007 and 2009, when Medicare payment for office-based DXA testing was cut substantially, 800,000 fewer tests were administered to Medicare beneficiaries than would have been expected based on earlier growth trends. The attenuation of office-based DXA testing during 2007–09, when DXA use continued to grow in hospital outpatient facilities by more than 5 percent each year, strongly suggests that Medicare’s office-specific payment cuts caused the decline in overall testing observed in 2009.

Our study corroborates a previous report that growth in DXA testing flattened after the payment cuts among people with Medicare supplemental insurance (including both fee-for-service and managed care enrollees), as well as among younger, commercially insured adults.<sup>4</sup> This indicates a possible spillover effect in which the closure of office-based DXA services resulting from Medicare cuts may have reduced DXA availability to people with commercial insurance. DXA closures included providers who removed DXA from the services they offered and providers who shut down their practices completely.

## EXHIBIT 2

**Elderly Female Fee-for-Service Medicare Beneficiaries Who Had At Least One DXA Test, 2002–10**

Year	Number	Percent
2002	1,627,286	11.3
2003	1,922,628	12.0
2004	2,091,242	12.5
2005	2,188,244	13.1
2006	2,301,443	13.8
2007	2,346,733	14.2
2008	2,341,870	14.6
2009	2,351,425	14.6
2010	2,321,810	14.1

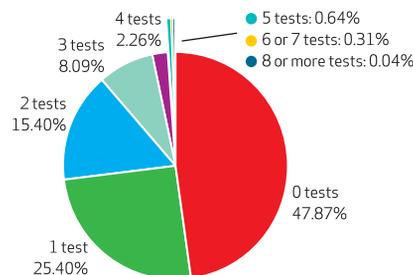
**SOURCE** Authors’ analysis of data from Medicare Physician/Supplier Procedure Summary Master Files, 2002–10, and Medicare 5 percent Limited Data Set standard analytic files, Claims and Enrollment, 2002–08. **NOTES** DXA is dual energy x-ray absorptiometry of the central skeleton. “Elderly” is age sixty-five or older.

There were no technological or medical developments regarding DXA efficacy or safety that would explain the decrease in DXA use after the payment cuts. In 2008 the advent of the World Health Organization’s fracture risk assessment tool, FRAX,<sup>17</sup> prompted the suggestion that osteoporosis screening costs might be reduced by basing diagnosis and treatment decisions in some cases solely on clinical risk factors.<sup>18</sup>

However, use of the tool alone may underestimate fracture probability in several patient groups.<sup>19</sup> Additionally, US medical guidelines rely on the World Health Organization’s definition of osteoporosis, which is based on a bone density score.<sup>20</sup> Although the tool may be a useful adjunct, it is not a replacement for DXA testing.<sup>19</sup> DXA testing has remained the preferred method

## EXHIBIT 3

**Distribution Of Elderly Female Fee-for-Service Medicare Beneficiaries By Cumulative Number Of DXA Tests, 2002–08**



**SOURCE** Authors’ analysis of Medicare Physician/Supplier Procedure Summary Master Files, 2002–08, and Medicare 5 percent Limited Data Set standard analytic files, Claims and Enrollment, 2002–08. **NOTES** DXA is dual energy x-ray absorptiometry of the central skeleton. “Elderly” is age sixty-five or older.

for osteoporosis screening and monitoring response to treatment in the United States.

► **PARTIAL PAYMENT RESTORATION:** At the time of our study, it was too early to evaluate the effects of the partial payment restoration. In 2010, when payment for office-based DXA tests was partially restored to 70 percent of 2006 levels, the portion of elderly women tested (14.1 percent) was lower than in 2008 or 2009 (Exhibit 2), and DXA testing decreased in both the office and hospital settings.

The magnitude of the DXA testing drop in 2010 (4.4 percent overall) and its impact across settings might reflect negative economic conditions that could have reduced the women's overall use of medical services. The effect on DXA might have been disproportionately large because preventive services are often considered less essential than therapeutic services and were still subject to cost sharing in 2010.

The persistence of a large gap between office testing rates, which dropped 6.3 percent in 2010, and hospital outpatient rates, which decreased by only 1.3 percent in the same year, may be explained by lengthy delays before providers received payment increases for 2010 claims. Most notably, retroactive payments for DXA tests performed during the first half of 2010 were not made until 2011, after the Medicare and Medicaid Extenders Act of 2010 appropriated the funds necessary for reprocessing the claims.

Moreover, because the temporary relief did not stabilize payment at a higher level, providers face the resumption of severe cuts in January 2012. A longer amount of time is needed to evaluate whether partial payment restoration can help stem the observed decline in the use of office-based DXA services.

**SHIFTS IN DXA TESTING SETTINGS** Historical trends shed light on our finding that growth in hospital outpatient testing only partially offset declines in physician office testing. Over the past fifteen years, Medicare-reimbursed DXA tests have been provided predominantly in physician offices. Before the 2007 payment cuts, only 20–30 percent of tests were performed in the hospital outpatient setting. Although this share grew to 33 percent in 2010, our data suggest that the shift in DXA use to the hospital outpatient setting cannot, at least in the short run, maintain access to this service.

**IMPLICATIONS FOR PROVIDERS AND BENEFICIARIES** In rural areas, where DXA testing rates lagged behind those in urban areas, residents are particularly vulnerable to reduced availability of office-based DXAs. Previous research has shown that travel distances of five miles or more reduce the likelihood of getting a DXA test.<sup>21</sup> Rural DXA providers were among the providers

who shut their offices completely or stopped offering DXA following Medicare's payment cuts,<sup>22</sup> perhaps because they lacked economies of scale.

Although weeding out some small-volume providers may be appropriate, DXA closure reports came from large and small practices alike. Relative to many other imaging services, office-based DXA has a low equipment use rate, being in use only 13 percent of the time, on average, in 163 practices surveyed in 2007 by the Lewin Group.<sup>23</sup>

That survey found that economies of scale ceased when a practice performed more than 1,500 tests per year. It also found that only 14 percent of the survey respondents would break even at a Medicare payment rate of \$82 per test in 2007. More recent data are needed to assess whether the 2010 payment rate for office-based DXAs, which exceeded the hospital outpatient rate by 20 percent, sufficed to compensate for higher overhead in the office setting.

**OVERUSE OR UNDERUSE** To evaluate whether DXA testing is under- or overused, we assessed testing rates and frequency in elderly women for the period 2002–08. During this time, clinical guidelines recommended bone density testing for all elderly women,<sup>11,24</sup> with the follow-up interval determined by each woman's fracture risk and clinical course.<sup>24</sup> Since 1998 Medicare has covered DXA testing every two years, or more often to monitor response to treatment. (In 2006 DXA became the only test covered for monitoring treatment response.)

Our analysis provided negligible evidence of overuse of DXA testing, either before or after the Medicare payment cuts. About 14 percent of elderly female Medicare beneficiaries were tested in 2010 (Exhibit 2). During 2002–08 only one in ten elderly women had repeated DXA tests at two-year intervals, and fewer than one in a hundred was tested more frequently (Exhibit 3).

Growth in DXA testing stopped in 2009, following a seven-year period during which only half of elderly women were tested. Our study found a higher cumulative testing rate (52.1 percent) than the 31.3 percent observed by Jeffrey Curtis and colleagues for 1999–2005.<sup>6</sup> That difference may be due to our study's later time frame (2002–08) and to differences in methods.

Nonetheless, given the prevalence of osteoporosis (25 percent) and low bone mass (48 percent) previously reported in elderly US women,<sup>1</sup> one would expect three-fourths of them to have had at least one DXA test over seven years—a higher figure than either study found.

Quality measures also indicate that DXA testing is underused. In 2009 only 20.7 percent of elderly women in Medicare health maintenance organizations received either a DXA test or treat-

ment for osteoporosis within six months after a fracture.<sup>25</sup> In fee-for-service Medicare, health professionals reported that only 41 percent of elderly women had been screened with DXA at least once since age sixty or had been treated with osteoporosis medication, and only 37 percent had been tested or treated after a fracture.<sup>26</sup> Separating DXA testing rates from treatment rates in these osteoporosis quality measures may prove useful in conducting future evaluations of DXA use.

**IMPACT ON CLINICAL OUTCOMES** We found the fracture rate to be nearly 20 percent lower in elderly women who had a DXA test than in those who had not, in a national Medicare population over three years—a period short enough to matter to health plan administrators and budget analysts. This finding is consistent with results from prospective randomized trials and observational studies that link DXA testing with increased osteoporosis treatment<sup>27–29</sup> and decreased fractures.<sup>30–32</sup>

**BUDGET IMPLICATIONS** Policies that reduce access to DXA testing may decrease Medicare Part B spending yet impose greater costs on the overall Medicare program by impeding fracture prevention efforts. For example, we estimated that 800,000 DXA tests were “lost” during 2007–09 because of the decline in office-based testing. Had those tests taken place, they might have prevented fractures in approximately 12,000 Medicare beneficiaries—an estimate based on the observed difference in fracture rates between elderly women who had a DXA test and those who did not.

Although our study did not measure fracture costs, research has shown budget savings when integrated health systems paired DXA testing with management of patients at risk for fracture. A Kaiser health plan reported a 37 percent decrease in hip fractures in men and women, compared with projected rates for their members, in the fifth year of an intervention that increased DXA testing by 247 percent and treatment by 135 percent.<sup>32</sup> Similar benefits were seen when Geisinger Health Plan implemented osteoporosis practice guidelines.

Considerable budget savings are possible if DXA testing were to be integrated with care coordination in the Medicare program to improve fracture prevention. Inclusion of both DXA testing and FRAX results in electronic health records would help ensure appropriate follow-up and would build evidence for refining guidelines on testing frequency. And although most quality initiatives focus on elderly women, they should not overlook men and nonelderly women, who collectively account for nearly one fifth of Medicare-reimbursed DXA tests.

## Policy Considerations

Our findings strongly suggest that after more than a decade of consistent growth in the use of DXA testing, cuts in Medicare Part B payments for office-based DXA tests reduced beneficiary access to this preventive service. The results also demonstrate that based on current clinical guidelines, DXA testing has not been overused. Rather, it has been underused by elderly female Medicare beneficiaries. Furthermore, for the elderly women who used it, it has been associated with a clear clinical benefit: fracture prevention.

Additional time is needed to evaluate whether the partial restoration of the cuts to Part B payments for DXA tests performed in physician offices—which brought payments up to 70 percent of 2006 levels for 2010 and 2011—will reverse the observed decline in testing. Just as there was a lag before the impact of the cuts was clear, it may take several years for increases in payment to reverse this trend.

A two-year extension of the partial restoration, covering 2012 and 2013, might provide a minimally sufficient period to assess the impacts of payment increases for providers, both alone and in conjunction with waived copayments for consumers, and to evaluate long-term solutions. In forging those solutions, mammography may provide a useful model for targeted policies regarding imaging to improve prevention. Mammography was the only imaging service exempted from Medicare payment cuts under the Deficit Reduction Act, and its use has been subject to extensive evaluation.

To properly guide Medicare Part B payment policy for DXA tests, additional research is needed on the geographic distribution of DXA testing facilities; DXA costs in physician offices and hospital outpatient facilities; quality-of-care measures that distinguish DXA testing rates from osteoporosis treatment rates; frequency standards for DXA testing; beneficiary surveys to understand obstacles to DXA access; and DXA use and fracture rates.

Our population-level analysis of fracture rates would be strengthened by future studies that adjusted for baseline fracture risk and potential confounders such as income, which is positively correlated with self-reported osteoporosis screening rates.<sup>5</sup> It is true that people who are healthier and wealthier tend to use more preventive services than others do. However, previous research indicates that women who obtain a DXA test have a greater fracture risk than would be expected based on the overall prevalence of osteoporosis.<sup>26,28,30,31</sup>

## Conclusion

Stable, reasonable Medicare payment rates are critical to beneficiaries' access to preventive services and providers' efficient delivery of them. This study provides evidence that the 40–56 percent cuts in Medicare Part B payments for DXA tests in physician offices exceeded reductions that might improve efficiency. The cuts impeded beneficiaries' access to DXA testing, which recent data indicate remains an underused preventive service. The brief, unstable period of partial

payment restoration provided by the Affordable Care Act during 2010 and 2011 has been inadequate to assess the value of Medicare policies that maintain access to office-based DXA testing. Payment relief should therefore be extended.

The observed correlation of DXA testing with fracture reduction in a national Medicare population holds promise for substantial progress in fracture prevention in the Medicare program if policies encourage appropriate access to the test and coordination of care across providers. ■

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**Alison B. King** is principal of Alison B. King LLC.

In this month's *Health Affairs*, Alison King and Donna Fiorentino write about the impact of cuts in Medicare Part B reimbursement on the use of DXA (pronounced "dexa") imaging—dual energy x-ray absorptiometry of the central skeleton—considered the "gold standard" test for osteoporosis. The payment cuts to this type of imaging began in 2007 and reached 56 percent by January 2010. The result, according to the authors, was 800,000 fewer tests

during 2007–09 than expected for Medicare beneficiaries. The forgone tests might have prevented approximately 12,000 fractures.

The authors began collaborating on osteoporosis testing issues following a 2007 meeting of six nonprofit societies, including the International Society for Clinical Densitometry. At that meeting, King presented her research on the burden of osteoporosis in the United States and the impact of fractures on the Medicare program.

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