ORIGINAL ARTICLE

Impact of Reimbursement Cuts on the Sustainability and Accessibility of Dopamine Transporter Imaging

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Abstract

Purpose: Dopamine transporter single-photon emission computed tomography imaging utilizing iodine-123 ioflupane is accurate for differentiation of Parkinson disease from essential tremor. This study evaluates how reimbursement for I-123 ioflupane imaging changed between 2011 (year of FDA approval) and 2014 (year after loss of pass-through status for hospital-based outpatient imaging from CMS).

Methods: I-123 ioflupane reimbursement data for our institution's hospital-based imaging were compared between two periods: (1) July 2011 to October 2012, and (2) 2014. For each time period separately and in combination, averages and ranges of reimbursement for private insurance and CMS were analyzed and compared. A model to ensure recouping of radiopharmaceutical costs was developed.

Results: Review yielded 247 studies from July 2011 to October 2012 and 94 studies from 2014. Average reimbursement per study fell from $2,469 (US dollars) in 2011 to 2012 to $1,657 in 2014. CMS reduced average reimbursement by $1,148 in 2014 because of loss of radiopharmaceutical pass-through status. Average reimbursements from CMS versus private payors markedly differed in 2011 to 2012 at $2,266 versus $2,861, respectively, and in 2014 at $1,118 versus $3,470, respectively. Between 2011 to 2012 and 2014, the CMS percentage increased from 54% to 78%. Assuming that I-123 ioflupane cost $2,000, our model based on 2014 data predicts a practice with greater than 60% CMS patients would no longer recover radiopharmaceutical costs.

Conclusions: Reimbursement levels, payor mix, scanner location, and radiopharmaceutical costs are all critical, variable factors for modeling the financial viability of I-123 ioflupane imaging and, by extrapolation, future radiopharmaceuticals.

Key Words: Dopamine transporter imaging, Medicare reimbursement, HOPPS, radiopharmaceutical cost, ioflupane, imaging access

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INTRODUCTION

Dopamine transporter imaging utilizing iodine-123 (I-123) ioflupane (DaTscan) accurately determines dopamine transporter status, which helps differentiate Parkinson's disease from essential tremor or normalcy [1-7]. I-123 ioflupane is one of the most recently FDA approved radiopharmaceuticals, having received approval in 2011. Reimbursement trends for dopamine transporter imaging may therefore illustrate the expected pattern of reimbursement for future diagnostic radiopharmaceuticals.

Novel radiopharmaceuticals are typically expensive. Budgeting for new radiopharmaceutical costs is difficult because initial reimbursement values are difficult to predict and then may change rapidly. Differences in reimbursement between private payors and CMS further complicate the picture.

The primary purpose of this study is to understand how CMS and private payor reimbursement for I-123 ioflupane imaging changed between 2011 (year of FDA approval) and 2014 (year after loss of CMS pass-through status). A secondary aim is to determine how payor mix affects the ability of a nuclear imaging practice to cover radiopharmaceutical costs.

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METHODS

Institutional review board approval was obtained. Departmental financial records were retrospectively reviewed for all I-123 ioflupane studies completed at our institution between July 2011 and October 2012 and between January 2014 and December 2014. These dates were chosen to compare reimbursement over the initial 15 months of imaging with a complete year of data following the loss of CMS pass-through status for hospital-based imaging, effective January 1, 2014. Financial records are from studies performed in a hospital-based outpatient setting. No examinations were performed on inpatients in either time period.

Neurologists with subspecialty training in movement disorders were the predominant group of referring physicians. Before November 2014, all examinations were performed with single-photon emission computed tomography (SPECT) only. After this date, examinations were performed with SPECT/CT. The same radiopharmacy was used throughout both study periods.

Data included date of study, insurer name, and total reimbursement received (technical fee plus professional fee). Data from all payors (ie, public, private, and self-pay) were tabulated into a spreadsheet. Data were evaluated to determine average and range of reimbursement for dopamine transporter imaging over time, including reimbursement differences between private insurance and CMS.

RESULTS

Retrospective financial record review yielded 247 studies from July 2011 to October 2012 (average of 16.5 studies per month) and 94 studies from January 2014 to December 2014 (average of 7.8 studies per month), for a total of 341 studies. An initial backlog of established patients waiting for approval of I-123 ioflupane explained a significant portion of the increased volume in 2011 to 2012 compared to 2014. Reimbursement was received from 14 private payors in 2011 to 2012 and 8 private payors in 2014.

Between 2011 to 2012 and 2014, the percentage of CMS patients in our population increased from 54% to 78%. Over those same periods, the percentage of patients with private insurance decreased from 43% to 22% (Table 1). Unpaid claims only occurred in 2011 (twice from CMS and once from a private insurer) and were included in the analysis. In 2012, 2.4% of patients came from the Veterans Affairs Health Care System. No Veterans Affairs Health Care System patients were imaged in 2014.

Table 1. Changes to payor mix at our institution over time

Payor	July 2011 - October 2012	January 2014 - December 2014
CMS	134/247 (54.2%)	73/94 (77.7%)
Private insurance	105/247 (42.5%)	21/94 (22.3%)
Veterans Affairs Health Care System	6/247 (2.4%)	0/94 (0%)
Self-pay	2/247 (0.9%)	0/94 (0%)

Average reimbursement per study for all payors was $2,469 (in US dollars) in 2011 to 2012 and $1,657 in 2014. CMS reduced average reimbursement in 2014 by $1,148 compared with 2011 to 2012 because of the loss of pass-through status for the radiopharmaceutical from a change in HOPPS reimbursement. Private insurers increased average reimbursement over the same time periods by $609. Private insurers reimbursed higher than CMS, on average, by $595 in 2011 to 2012 and $2,369 in 2014 (Table 2).

Graphing the reimbursement chronologically (Figure 1) demonstrates greater variability in reimbursement from private insurers compared with CMS, particularly during the initial months of imaging in 2011. For example, the first 10 studies from private payors reimbursed, on average, $5,161 more per study than the first 10 CMS studies (average of $7,172 for private payors and $2,011 for CMS). Private reimbursement rapidly decreased to near CMS levels and then average private reimbursement fell below CMS by $52 from November 2011 to February 2012. Average private reimbursement increased to again exceed CMS by $299 from March to October 2012.

Payments by private payors and CMS demonstrated wide ranges of reimbursement that changed differently over time. The range of CMS payments narrowed over the two time periods from $0 to $2,254 (average $2,266 ± $452) in 2011 to 2012 to $674 to $1,621 (average $1,118 ± $119) in 2014. The range of private payor payments was larger than CMS payments during both time periods, with $0 to $8,754 (average $2,861 ± $2,054) in 2011 to 2012 and $112 to $9,675 (average $3,470 ± $1,570) in 2014.

A model generated from 2014 data predicts total reimbursement as a function of payor mix (Figure 2). Using this model, an imaging practice can use historical data on payor mix to estimate the average reimbursement and, therefore, net revenue after the