OBJECTIVES
This study analyzed the health care resource use of Medicare patients with primary osteoarthritis of the knee compared to similar patients without this condition and examined shifts in patient claims and spending patterns.

METHODS
The methodology of this study is explained in detail in another post.1 We analyzed deidentified patient-level Medicare claims data from 2009 and 2014, and estimated resource use of knee osteoarthritis (KOA) patients. We restricted inpatient stays, outpatient visits, physician office visits (i.e. non-institutional service), skilled nursing facilities (SNF), and home health care (HHC). The CMS 5% sample dataset of physician office visit claims was used to identify KOA patients which were then linked to the other 4 complete claims datasets. A benchmark population without KOA was also generated using demographics-based propensity score matching. Resource use patterns between the 2 populations were compared cross-sectionally and between 2009 and 2014.

The burden of disease is defined as the increased amount of resource use and financial burden for KOA patients when compared to a similar non-KOA patient. All cost data was inflation-adjusted to 2014 dollars.

RESULTS
Study population
The KOA patient cohorts identified from the 5% sample physician office visits dataset resulted in 94,054 individuals for 2009 and 105,764 individuals for 2014, representing a 12% increase. Of these, close to 90% were 65 years or older, approximately two-thirds were female, and approximately 85% were non-Hispanic white (Exhibit 1). By construction, the control sample (without KOA) was identical to the analysis sample in demographics and Medicare status.

Extrapolating the 5% sample to 100% Medicare beneficiaries with claims, it was estimated that there were 1,881,000 and 2,115,000 KOA patients who had some form of health care resource use in 2009 and 2014, respectively.


Resource utilization
Based on extrapolation from the 5% sample data set, the number and proportion of KOA patients increased between 2009 and 2014 (1,881,005 (5.6%) and 2,115,005 (5.9%), respectively), representing an overall increase of approximately 234,000 patients over 5 years. Similarly, the total number of disease-related claims for the KOA population increased from 86.7 million (2009) to 95.4 million (2014), representing a 10% greater claims-processing impact to CMS. When assessing the burden of disease based amongst Medicare beneficiaries (difference between KOA and non-KOA medical resource use) was significant for both 2009 and 2014 ($6,234 and $5,364, respectively) (Exhibit 3). We also assessed KOA related costs using 2 different perspectives: CMS payment/ reimbursement and total expense paid (sum of CMS reimbursement, patient contribution and 3rd party co-insurance). In Medicare, there was a decrease in reimbursement per KOA patient in 2014 versus 2009 ($5140 vs. $12,663), respectively, likely as a result of increased cost-containment measures taken in 2013. However, despite this significant reduction in Medicare reimbursement, total overall expense decreased only $1,485 from $17,043 in 2009 to $15,558 in 2014 (Exhibit 4).

However, the number of patients being treated for KOA continues to rise, thus the total expense for providing medical care to patients with KOA increased from $32B to $33B between 2009 and 2014. This increased total medical expense cost along with decreased Medicare reimbursement amount ultimately represents a shift in financial burden to patients and 3rd party insurance (Exhibit 5).

CONCLUSION
In this comprehensive analysis of medical costs across care settings in Medicare, it was demonstrated that patients with KOA have higher medical expenditures compared to patients without KOA, as well as showing that the total estimated number of KOA beneficiaries increased by 13% between 2009 and 2014. An interesting finding in this study was that the inflation-adjusted total Medicare reimbursement payment for an KOA patient decreased by 4% over a 5-year period. However, this decrease was more than offset by the 13% increase in the number of estimated KOA patients, resulting in an overall 3%-increase in total expense paid in 2014. Even as reimbursement decreased, the expense of caring for this population increased, likely representing a shift to a greater financial burden of care falling to patients and 3rd party insurance.