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Lip Biopsy Trends in the United States: A 7-Year Review of Medicare Provider Utilization and Payment Database

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Background

Biopsy of the lip is a procedure most used by dermatologists in order to obtain histopathological evaluation of a lesion. It has remained the definitive method of diagnosis for many pathologies, including malignancy. However, although the incidence of lip malignancy has been relatively unchanged since 2012, the number of lip biopsies performed has not followed the same trend, but rather steeply declined since[1]. In this study, the national trends in lip biopsies are evaluated. The Medicare Provider Utilization and Payment (MPUP) database was used to evaluate these practice trends in Medicare providers.

Methods

Results were imported from the Physician and Other Supplier Public Use File within the MPUP database. Several queries were designed in order to obtain lip biopsy information based on specific qualifiers using HCPCS code 40490, which codes for "Biopsy of lip". The data was then analyzed via a spreadsheet program to show changes in trends over the years. A query was designed to analyze the total count of lip biopsy procedures per year nationally. The average Medicare payment amount per procedure each year, on a national scale inclusive of all specialties was also analyzed. A separate query was designed to obtain only the number of dermatologists performing this procedure each year. All variations of these measures from 2012 to 2018 were calculated and plotted. The only demographic data available by CMS was each provider's individual state of practice. To demonstrate regional changes over time, providers' states were divided into 4 regions as categorized by the US Census Bureau (Northeast, Southeast, West, and Midwest), then each region's biopsy count was plotted over the course of 7 years. All graphs were created, and R^2 values were calculated using a spreadsheet program.

Results

From 2012 to 2018, the total number of lip biopsies performed in the United States decreased steadily from 18,277 in 2012 to 6,945 in 2018, a 62.00% decrease with an R^2 value of 0.88 (Figure 1).

In terms of provider type, dermatologists (MDs and DOs) comprised about 90% of providers performing lip biopsies year after year. As dermatologists were the primary provider type performing this service, the number of dermatologists documented as performing lip biopsies was calculated. The number of dermatologists performing this procedure each year decreased from 776 in 2012 to 315 in 2018, a 59.41% decrease with an R^2 value of 0.91 (Figure 2). Nurse practitioners and physician assistants comprised between 6% and 12% of providers performing the procedure each year, but CMS data did not provide specific specialties for these providers, so their data was excluded from the dermatologist count as we could not deduce their specialty of practice.

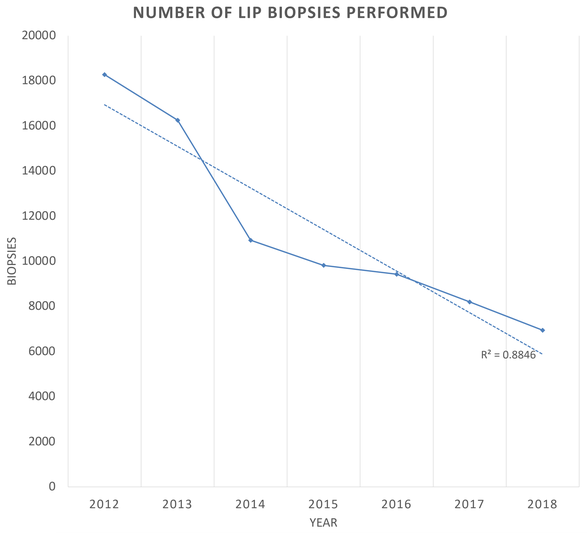


Figure 1. Trend of number of lip biopsies performed nationally

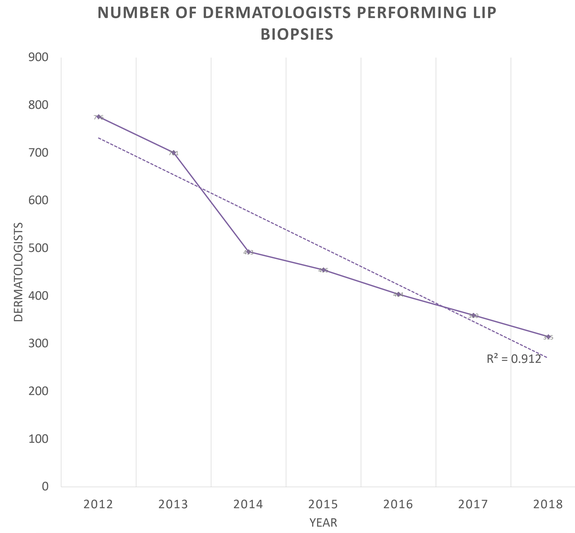


Figure 2. Trend of number of dermatologists performing lip biopsies

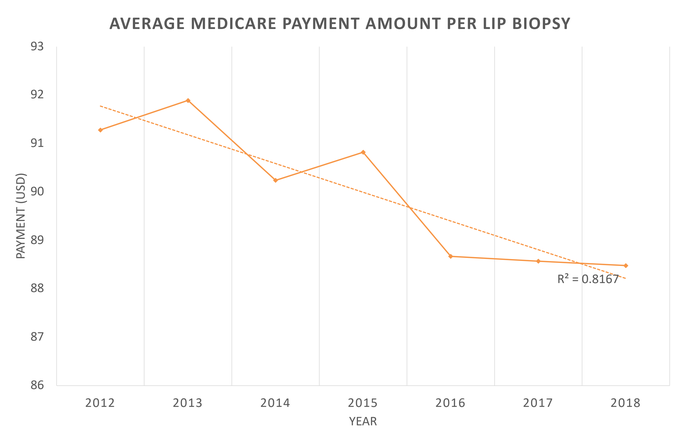
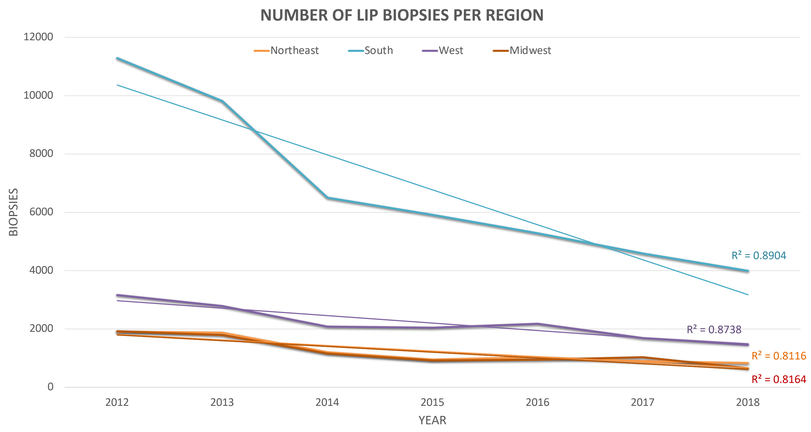


Figure 3. Trend of average Medicare payment amount per lip biopsy

Figure 4. Trend of number of lip biopsies per region



Results

The remaining providers performing the procedure were family medicine physicians, otolaryngologists, pediatricians, and plastic surgeons, among others.

We evaluated the average Medicare payment amount per year for this procedure to determine if there was correlation between fewer procedures being performed and decreased compensation. We found that over this 7-year period, payment only decreased by about $2.80 ($91.28 in 2012 to $88.48 in 2018), signifying a 3.07% decrease in compensation (Figure 3).

The number of lip biopsies being performed in each of the four regions of the United States was evaluated to account for major shifts within a certain region. We found that from 2012 to 2018, there were similar percent decreases in the number of biopsies being performed per region. In the North, South, West, and Midwest, there was a 56.55%, 64.63%, 53.38%, and 66.15% decrease in biopsies, respectively, with no major inconsistencies seen in any one region throughout the years (Figure 4). All data had R^2 values between 0.81 and 0.89. The South, however, did account for the larger majority of total lip biopsies throughout this time period, comprising about 60% of the total national biopsies. Despite their large volume of procedures, the South still decreased in biopsy count at a rate comparable to that of the other regions.

Conclusions

Throughout the country, the number of lip biopsies being performed by Medicare providers has decreased throughout the 7-year period we evaluated. There was a similar percent decrease in the number of biopsies being performed as in the number of dermatologists performing said procedure. By contrast, there was a much smaller percent decrease in average Medicare payment amount per year for this procedure. Data was unavailable for factors such as lesion morphology and differential diagnosis that may have impacted provider decisions to biopsy or not to biopsy. This data only accounted for Medicare patients and providers. This data encourages further studies to be conducted focusing on qualitative assessments of provider decision-making and to evaluate whether similar trends persist over time. Further studies should also be performed based on private insurances to see if similar patterns exist in terms of compensation and whether similar trends can be found among different insurance carriers.

References

1. Cancer Stat Facts: Lip Cancer. Surveillance, Epidemiology, and End Results Program website. Accessed April 20, 2021. seer.cancer.gov/statfacts/html/lip.html

2. Medicare Provider Utilization and Payment Data: Physician and Other Supplier. U.S. Centers for Medicare and Medicaid Services. Updated December 3, 2020. Accessed April 4, 2021. https://www.cms.gov/Research-Statistics-Data-and-Systems/Statistics-Trends-and-Reports/Medicare-Provider-Charge-Data/Physician-and-Other-Supplier