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Changes in public interest for Mohs micrographic surgery: a Google Trends analysis

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To the Editor

Utilization of Mohs micrographic surgery (MMS) for treatment of skin cancer has been rising.¹ MMS is commonly employed for management of appropriate non-melanoma skin cancers, including basal cell carcinoma (BCC) and squamous cell carcinoma (SCC); its role is becoming more prevalent for melanoma.² Google Trends is a public tool that displays temporal and geographic trends for Google search queries. One study analyzing Google Trends data from 2004-2016 found increasing public interest in MMS.³ In this prior study, the search interest for the term *Mohs surgery* significantly correlated with *basal cell carcinoma* and *squamous cell carcinoma*, but not with *melanoma*.³

Analyzing trends in public interest for MMS may reflect the amount of surgery being performed as well as being a means to uncover educational gaps for the public to better understand the benefits of this procedure. The purpose of this study was to evaluate current Google Trends searches for MMS versus 2016 findings³ to assess changes in public interest of this procedure.

Using accepted prior methodology,³ data was collected based on a query of Google Trends performed on March 17, 2024. The search terms utilized were *Mohs surgery*, *basal cell carcinoma*, *squamous cell carcinoma*, *melanoma*, and *skin cancer*. A published checklist for selection criteria was used to ensure transparency and reproducibility of this Google Trends analysis.⁴ Searches were limited to the US with the date range of December 1, 2016 to March 16, 2024. The category was restricted to *health*.

Google Trends calculates the "search volume index" (SVI), which is the number of searches of a unique term normalized to the total number of searches. The SVI is displayed on a scale from 0 to 100, in which 100 represents the "peak search volume." Pearson correlation co-

efficients were generated to assess the associations between search terms. As the prior study using the same methodology analyzed data until November 30, 2016,³ comparative analyzes were begun with December 1, 2016. Data was analyzed using SPSS v29.0.1.0.

Public interest for *Mohs surgery*, *basal cell carcinoma*, and *squamous cell carcinoma* demonstrated an overall increasing trend since 2016 (Figure 1). Over the study period, SVI for *Mohs surgery* peaked in January 2023 and was at a low in March-May 2020. SVI for *Mohs surgery* was significantly correlated with *basal cell carcinoma* ($r=0.72$), *squamous cell carcinoma* ($r=0.84$), *melanoma* ($r=0.51$), and *skin cancer* ($r=0.42$). SVI for *basal cell carcinoma* was also significantly correlated with *squamous cell carcinoma* ($r=0.77$). SVIs for both *basal cell carcinoma* and *squamous cell carcinoma* were significantly correlated with *melanoma* ($r=0.79$, $r=0.54$, respectively) and *skin cancer* ($r=0.66$, $r=0.45$, respectively). SVI for *melanoma* was also significantly correlated with *skin cancer* ($r=0.72$). A related query associated with *Mohs surgery* was "Mohs surgeon near me," and was designated as a "breakout" search term, representing >5,000% increase in searches since 2016.

Mean SVI for search terms *Mohs surgery*, *basal cell carcinoma*, and *squamous cell carcinoma* were all significantly higher subsequent to December 1, 2016 compared to the prior interval (68.99 versus 41.23, 74.08 versus 62.68, 71.73 versus 54.02, $p<0.001$ for all). Conversely, the mean SVI for *melanoma* (64.55 versus 62.39, $p=0.11$) and *skin cancer* (49.60 versus 47.05, $p=0.08$) were not significantly changed after December 1, 2016 compared to the prior interval.

Our results demonstrate that public interest in MMS continues to rise and is significantly greater in recent years. There remains a strong correlation in searches for MMS and both BCC and SCC.³ There was also a new significant correlation between BCC and SCC with *melanoma*

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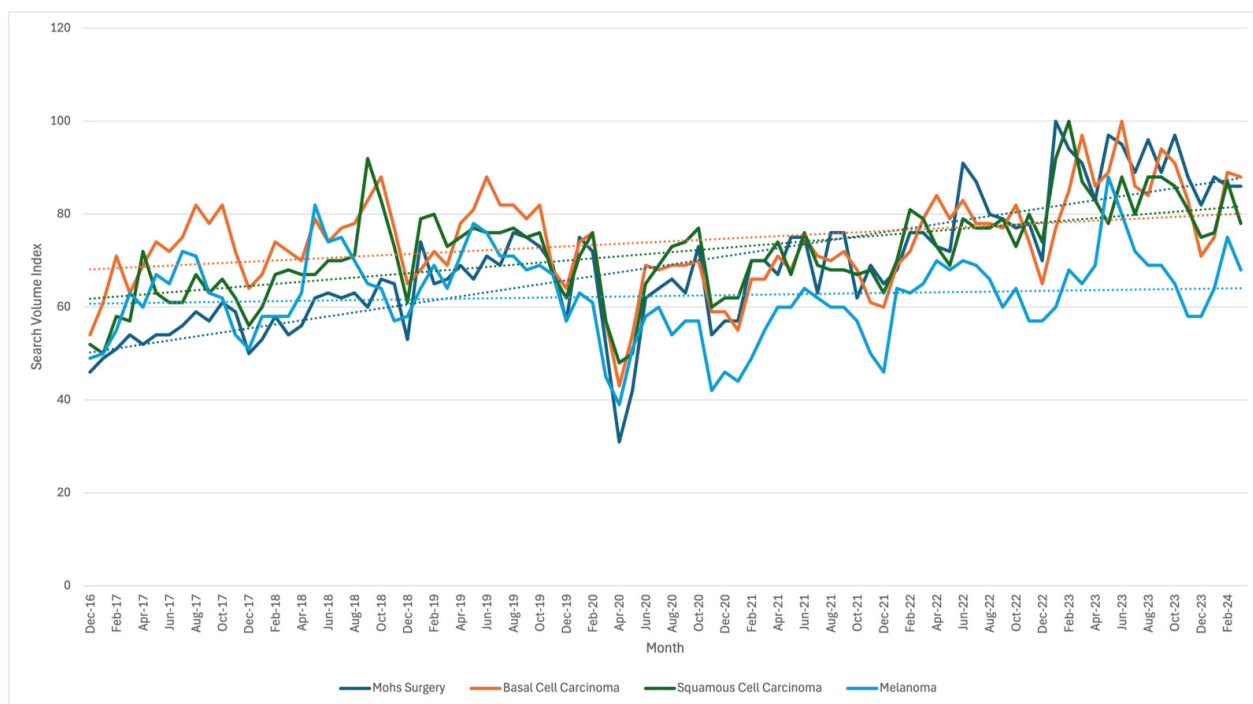


Figure 1. Search volume index for Mohs surgery, basal cell carcinoma, squamous cell carcinoma, and melanoma: 2016 to 2024.

and *skin cancer*, which may reflect that public education initiatives have improved awareness of these cancers.

Utilization rates of MMS for melanoma increased from 3.5% in 2004 to 7.6% in 2019.² Whereas previous analyses found no correlation between MMS and *melanoma* search interest,³ our data shows a correlation is now present, which supports the growth in MMS for melanoma treatment.

Despite the overall up-trending public interest, during the onset of COVID-19, search volume for MMS declined to levels similar to 2010. This is consistent with prior literature demonstrating an inverse correlation between *Mohs surgery* SVI and new COVID-19 deaths.⁵ However, since nadiring in April 2020, SVI for MMS has risen approximately threefold. Notably, the marked increase in searches for the breakout term “Mohs surgeon near me” suggests that the public has been increasingly interested in the services of Mohs surgeons and may therefore indicate a continued increasing demand for these procedures.

Limitations for this analysis include that this is an observational study and Google Trends is a crude tool to evaluate complex issues, such as utilization of MMS. Google Trends does not include search queries conducted in other search engines. However, a strength of this study is that it uses the same methodology as prior published studies.

Public interest for MMS continues to grow. The significant correlation of MMS SVI to SVI for BCC, SCC, melanoma, and skin cancer suggests public interest of MMS for treating these cancers. Our findings suggest that educational initiatives should continue to be aimed at improving patient knowledge regarding MMS and its uses.

Potential conflicts of interest

The authors declare no conflicts of interest.

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