

# A Meta-analysis Evaluating the Efficacy of Various Surgical Treatment Modalities on Melanomas

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## Background

Treating periocular skin cancers is challenging due to the close proximity of the lesions to essential anatomical structures. Surgical options for periocular skin cancers include standard surgical excision (GSE), Mohs micrographic surgery (MMS), wide local excision (WLE) and frozen section evaluation (FSE). Currently, there is no randomized study comparing the efficacy of these surgical treatments on different types of periocular skin cancers.

## Methods

### Types of Cancer Analyzed

Basal Cell Carcinoma (BCC)

Squamous Cell Carcinoma (SCC)

Sebaceous Carcinoma

Other Non-Melanomas

Melanoma

### Surgical Options Analyzed

Mohs Micrographic Surgery (MMS)

Wide Local Excision (WLE)

Frozen Section (FSE)

General Standard Excision (GSE)

Cryotherapy (CYT)

## Methods

A meta-analysis was conducted, evaluating the recurrence rates of periocular skin cancers status-post surgical treatment. Subgroup analysis further compared results among surgical modality and skin cancer subtypes.

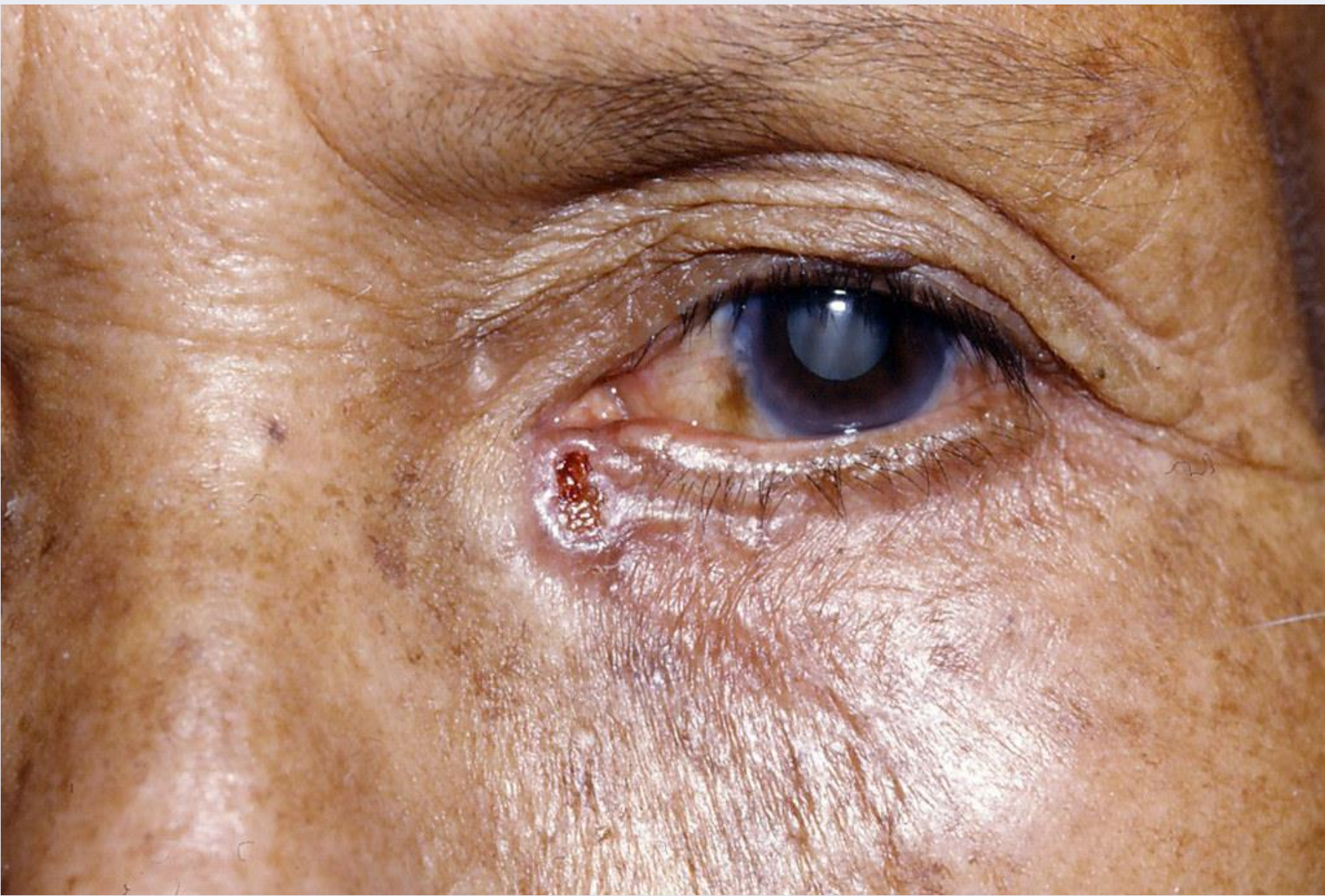
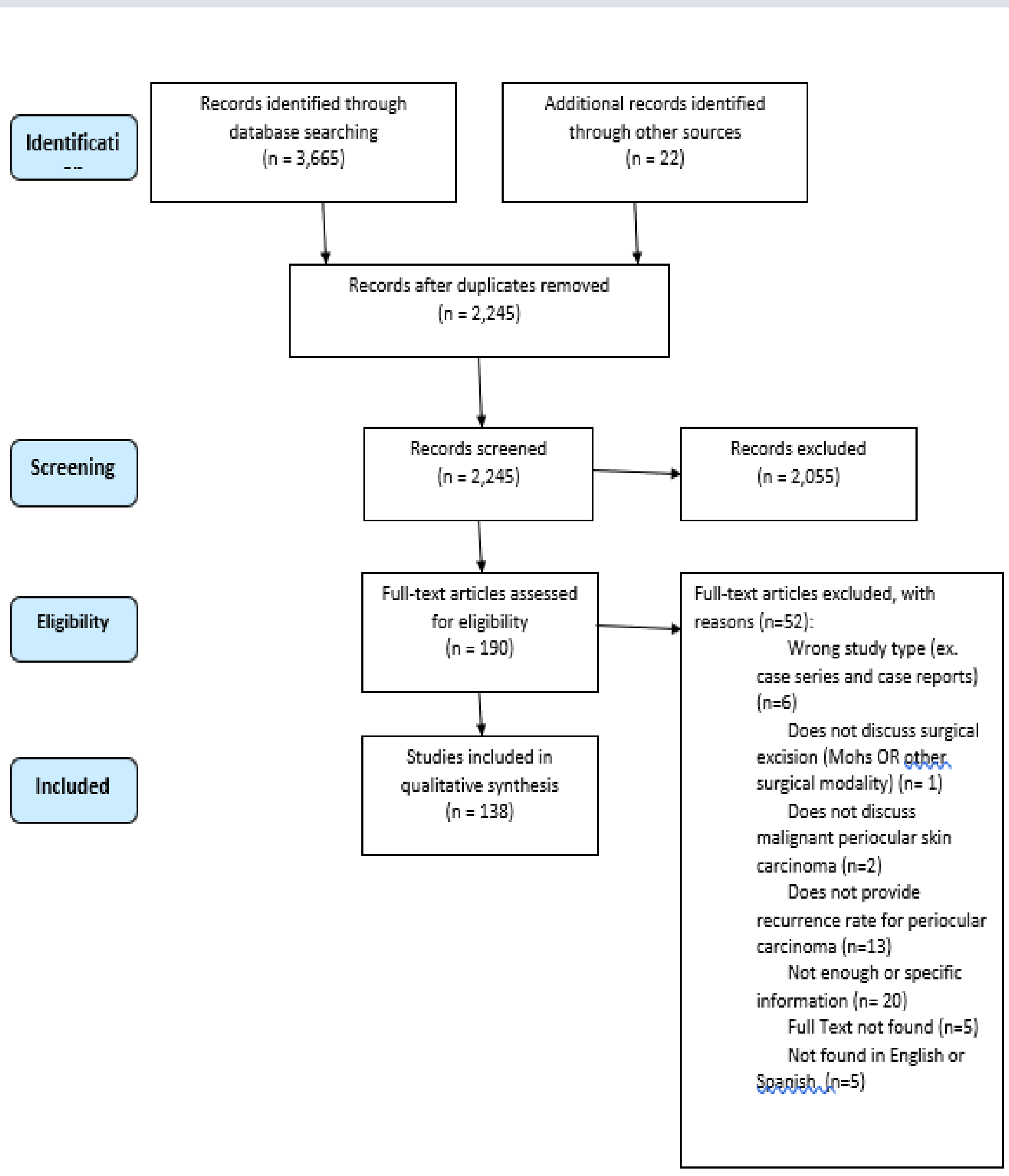
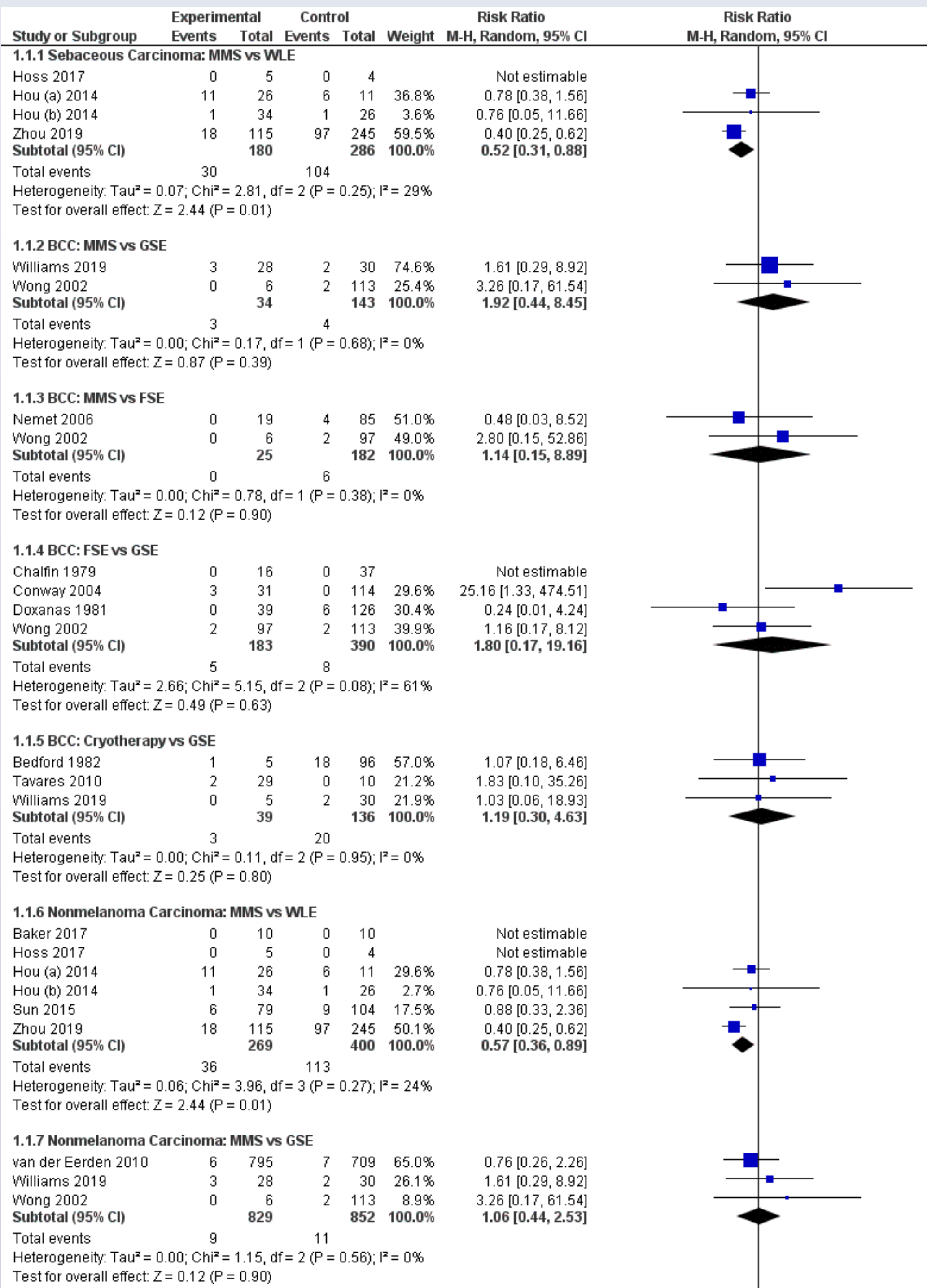


Figure 1. Periocular basal cell carcinoma, Source: Community Eye Health



## Results

For basal cell carcinoma, meta-regression analysis of proportions showed that the recurrence rate for MMS was significantly lower compared to WLE ( $p < 0.003$ ); the recurrence rate for FSE was also significantly lower compared to WLE ( $p < 0.001$ ). For sebaceous carcinoma, the recurrence rate for MMS was also significantly lower compared to WLE ( $p < 0.001$ ). Meta-regression on squamous cell carcinoma also demonstrated significantly lower recurrence rates in MMS than that of FSE ( $p < 0.001$ ) and GSE ( $p = 0.001$ ).



## Conclusions

Our results showed that patients who underwent MMS had lower recurrence rates of sebaceous carcinoma or non-melanomas compared to patients who underwent the WLE technique. Proportionally among all studies, MMS was also demonstrated to have significantly lower recurrence rates in basal cell carcinoma and sebaceous carcinoma compared to WLE; and lower compared to FSE and GSE in squamous cell carcinoma. Overall, these results illuminate that MMS is an excellent surgical technique for periocular cutaneous non-melanomas. Further larger scale studies are needed to determine robust efficacy and guidelines for optimal surgical treatment and enhance patient outcomes.

## References

- Moran JM, Phelps PO. Periocular skin cancer: Diagnosis and management. Dis Mon. 2020 Oct;66(10):101046. doi: 10.1016/j.disamonth.2020.101046. Epub 2020 Jun 27. PMID: 32600650.
- Phan, K. Oh, Lawrence; Goyal, S., Rutherford, T., Yazdabadi, A. Recurrence rates following surgical excision of periocular basal cell carcinomas: systematic review and meta-analysis. Journal of Dermatological Treatment. 2019.
- Hogeweg, Margaret. Basal Cell Carcinoma. Community Eye Health.