

A COST-EFFECTIVENESS REVIEW OF MOHS MICROGRAPHIC SURGERY VERSUS SURGICAL EXCISION FOR TREATING PRIMARY NON-MELANOMA SKIN CANCERS

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Background: Non-melanoma skin cancers (NMSC) are the most prevalent skin cancers, with high financial burden for the NHS. It is generally accepted that Mohs micrographic surgery (MMS) is the treatment with the lowest recurrence rates.

Aims: To compare the cost-effectiveness of MMS vs. surgical excision (SE) for the treatment of NMSC.

Methods: We conducted a literature search on PubMed, Google Scholar and Springer-Link, using the search terms: 'Mohs', 'Surgical Excision', 'Skin Cancer', and 'Cost'. We found 71 publications and, after applying our exclusion criteria, we were left with six papers to review (Figure 1).

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|------------------------|------------------|-----------------------------|--------------------|--------------------------------|------------------------------|---------------------------------------------------|
| 24 older than 20 years | 2 not in English | 16 Reviews and Case studies | 2 Duplicates found | 3 publications were on animals | 14 not relevant to the topic | 4 didn't differentiate primary and secondary NMSC |
|------------------------|------------------|-----------------------------|--------------------|--------------------------------|------------------------------|---------------------------------------------------|

Figure 1: Summary of The Article Selection Process

Results:
Summarised below (Table 1).

| Study | Year of Publication | Number of tumours (n) | NMSC type | End Point | Cost of MMS (US \$) | Cost of SE (US \$) | Difference (SE - MMS) (US \$) |
|----------------------------------|---------------------|-----------------------|-------------|--------------------------|---------------------|--------------------|-------------------------------|
| Sebaratnam et al. ⁽⁴⁾ | 2016 | n = 309 | BCC | Initial margin clearance | \$491.89 | \$445.65 | -\$46.24 |
| Ravitskiy et al. ⁽⁵⁾ | 2012 | n = 406 | BCC and SCC | 5 years | \$804.72 | \$1025.83 | \$221 |
| Cook and Zitelli ⁽⁶⁾ | 1998 | n = 400 | BCC and SCC | 5 years | \$1243 | \$1167 | -\$76 |
| Bialy et al. ⁽⁷⁾ | 2004 | n = 98 | BCC and SCC | Initial margin clearance | \$937 | \$1029 | \$92 |
| Seidler et al. ⁽⁸⁾ | 2009 | n = 98 | BCC and SCC | 5 years | \$957 | \$1248 | \$292 |
| Mosterd et al. ⁽⁹⁾ | 2008 | n = 270 | BCC | 5 years | \$1522.12 | \$1207.45 | -\$314.67 |
| Mean | | n = 263.5 | | | \$992.62 | \$1020.49 | \$28.02 |

(Rated used to exchange all figures into USD were AUD 1:0.79 USD and Euro 1:1.22 USD)

Table 1: Cost analysis of MMS versus SE

Discussion: The mean cost difference was \$28.02 in favour of MMS. However, the range of values varied significantly; from MMS being cheaper by \$292 to being more expensive by \$314.67 (€258) compared to SE.

Conclusion: Generally, MMS has been found to have lower recurrences and higher QALY's compared to SE, and may also be more cost-effective. In an era of increased NHS strain, more rigorous trials are required to determine cost-effectiveness.