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Time and economic cost of the routine use of marker sutures in surgical management of cutaneous skin malignancies

Dingle, Lewis A.; Smith, Clara; McPherson, Kathryn; Jordan, Daniel J.

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1 **Time and economic cost of the routine use of marker sutures in surgical management** 2 **of cutaneous skin malignancies**

3
4 Dear Editor, Excision and direct closure of cutaneous skin malignancies is a commonly
5 performed surgical procedure. Presentations, and therefore excisions, of cutaneous malignancies
6 including basal cell carcinomas (BCC), squamous cell carcinomas (SCC) and malignant
7 melanomas (MM) continue to increase. In many centres, a 'marker suture' is used to orientate a
8 specimen, which may be used to plan re-excision in cases with involved histological margins.

9
10 There are flaws with this wisdom. Incomplete margins of high-risk lesions, regardless of location
11 relative to a marker, are often treated with re-excision of the whole scar, with an appropriate
12 radial margin and deep to the next anatomical plane to ensure removal. Incomplete excision of
13 low-risk lesions is not always treated with re-excision. Only 62% of BCC re-excisions contain
14 residual tumour(1). Alternative approaches (observation, topical therapy or targeted
15 radiotherapy) may be used making marker sutures of little benefit.

16
17 Tullett(2) note marker sutures influenced re-excision in only a single case from a series of 663
18 BCC excisions using marker sutures. Other patients with involved margins underwent
19 observation or adjuvant radiotherapy rendering use of a marker suture pointless. Discord exists in
20 the interpretation of marker sutures. Jones(3) note pathologists and surgeons interpret the use and
21 orientation relative to a marker suture differently, with risk of inaccurate understanding of a
22 reported involved margin. Risk of misinterpretation is averted with scar re-excision, in which
23 marker sutures are redundant.

24
25 Absolute cost of suture material (e.g. 3-0 Mersilk (Ethicon®), £1.29/suture (Scottish National
26 Distribution Centre pricing)) may be avoided using alternative techniques such as 'blunting' one
27 edge or annotated photographs. However, addition of any marker influences pathologist and
28 technician processing. Oriented specimens result in additional costs (Table 1). Unoriented
29 specimens are prepared as a single block. By contrast, oriented specimens are often processed
30 into three blocks(4). Each block generates a minimum of one H&E-stained slide, which requires
31 analysis. Technician and pathologist time is highly valuable, therefore unnecessary specimen

1 processing, analysis and reporting should be minimised. We estimate approximately 3500
2 cutaneous specimens are processed by the NHS Tayside pathology department annually.
3 Although costs are small for individual cases, when scaled up to hospital or national level, they
4 become significant.

5
6 When resources in the NHS are overstretched, avoidance of small additional costs in commonly
7 performed procedures are an effective method to reduce pressures. Omission of marker sutures
8 frees up valuable time for pathology departments to process more challenging specimens, as well
9 as reducing the financial cost to both surgical and pathology departments.

10
11 “*Shall I put a marker suture in this?*” is a common operating theatre question. We advocate that
12 for simple excisions with direct closure, marker sutures are an unnecessary and wasteful addition
13 for most cases. The Royal College of Surgeons of England ‘Sustainability in the Operating
14 Theatre’ guide(5) aims to reduce the national surgical carbon footprint. Additional equipment
15 and materials required for unjustified maker sutures cannot be reconciled with this strategy to
16 tackle climate change. Although only a small factor, we must all contribute to help surgery
17 achieve net zero by 2045.

18
19 Lewis A. Dingle,¹ Clara Smith,¹ Kathryn McPherson² and Daniel J. Jordan¹

20 ¹Department of Plastic Surgery, Ninewells Hospital, James Arrott Drive, Dundee, UK

21 ²Department of Pathology, Ninewells Hospital, James Arrott Drive, Dundee, UK

22
23 **Correspondence:** Lewis A. Dingle

24 **Email:** lewis.dingle1@nhs.scot

25
26 **ORCID:** LAD - 0000-0002-1886-921X

27 CS - [0000-0003-2480-7012](https://orcid.org/0000-0003-2480-7012)

28
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31 **Conflicts of interest:** None to declare.

1 **Data availability:** The data underlying this article (NHS Tayside Pathology Department workload) will
2 be shared on reasonable request to the corresponding author.

3 **Ethics statement:** Not applicable
4

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17 Surgeons of England; 2022.
18

19 **Table 1** Processing implications for use of a marker suture in cutaneous histology specimens

	<i>Without</i> Marker Suture	<i>With</i> Marker Suture
Cost of suture material	0	£1.29
Number of blocks prepared	1	3
Number of slides prepared	1	3
Estimated <i>time</i> to process	3 mins	9 mins
Estimated <i>cost</i> to process*	£1.75	£6.54

20 *Estimated cost of producing a single block approximately £1.25 (calculated from technician
21 pay at £25/hour with estimated 20 blocks/hour) plus £0.50 per H&E slide produced (including
22 slide, coverslip and consumables). Additional pathologist analysis and reporting time would be
23 in addition to this cost.
24