

Research paper 5

## What are the best colours and colour combinations useful in inking surgical margins?

D.N.U. Jayathunge<sup>1</sup>, K.G.H Silva<sup>1</sup>, S. Thilakaratne<sup>1</sup>, D. Ediriweera<sup>2</sup>, J. Hewavisenthi<sup>1</sup>

<sup>1</sup>Department of Pathology, Faculty of Medicine, University of Kelaniya, Sri Lanka.

<sup>2</sup>Centre for Health Informatics, Biostatistics and Epidemiology, Faculty of Medicine, University of Kelaniya, Sri Lanka.

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**Background:** The involvement of surgical margins is a key factor determining the prognosis and management of malignancies. Some specimens require inking up to six margins.

**Objectives:** 1.To determine the best colours to ink margins using two freely available local paint brands, Fabrica [FB] and Fevicryl [FV]. 2. To determine the best colour combinations to assess two adjacent surgical margins.

**Method:** Initially, the circumference of a total of 140 sections of lipomatous tissue, (1x1cm), were painted with black (BK), blue (BL), brown (BR), green (GR), orange (OR), red (RE) and yellow (YE) using FV and FB. Two investigators separately scored the colour retained [circumferential score 1-4 (1-25% 1, 26-50%-2, 51-75%-3, 76%-100%-4)], the intensity and the original colour score. A composite grade was obtained by the sum of the Z-scores of these three. Secondly, the four best colours, FV-BK, FV-GR, FB-BL and FV-RE, were used to paint the circumference of 20 sections of lipomatous tissue (2x2 cm) to get six combinations (BK-GR, BK-BL, BK-RE, GR-BL, GR-RE and RE-BL). The Z-scores were derived from the differentiation scores given by two independent investigators. The intensity score, original colour score and differentiation scores (1-4) were graded as:1- barely visible X400, 2 - visible X400, 3 - visible X100, 4 - visible X40. Two-way analysis of variance (ANOVA) and a post hoc mean comparison (Tukey HSD) were performed.

**Results:** Higher standardized composite scores were obtained for FV compared to FB, except for BL and OR. FV-BK had the highest score, while FV-OR scored the lowest. The best colour combinations were BK-GR, GR-RE and BL-RE, while GR-BL was the worst.

**Conclusion:** Black, green, red, brown (Fevicryl) and black, blue, orange (Fabrica) were the seven best colours. The best combinations were black-green, green-red (Fevicryl), and blue (Fabrica) with red (Fevicryl).

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Corresponding author: Dr. Nishani Jayathunge  
Department of Pathology, Faculty of Medicine  
University of Kelaniya, Sri Lanka  
[nishaniu@kln.ac.lk](mailto:nishaniu@kln.ac.lk)



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