

Quality Improvement Project: Preventing Wrong Side Errors on Undergraduate Dental Clinics

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Introduction

Wrong side errors (WSEs) are preventable events whereby a member of the dental team confuses left and right. Wrong side errors are seen in charting, record keeping, and notation systems, which all follow inverted principles. The impact of wrong side errors can range in severity, from causing a minor inconvenience to a significant patient safety issue, such as extracting the wrong tooth. Between 2009 and 2019, 23 wrong site extractions occurred in UK dental schools¹ due to WSEs in charting highlighting potential complexities with these notation systems.

This quality improvement project (QIP) was designed to investigate wrong side errors, identified as a potential issue, amongst fourth- and fifth-year dental students at the University of Dundee. Prior to our intervention, 38% of dental students were found to have confused left and right when using dental notations

The different dental notation systems referred to include:

- FDI (e.g. 11, 24, 36, 47)
- Alphanumeric (e.g. UR1, UL4, LL6, LR7)
- Palmer/Quadrant (e.g. $\underline{1}$, $\underline{4}$, $\underline{6}$, $\underline{7}$)

Aims

- Identify common causes of WSEs by dental students
- Implement standardised measures for clinical safety preventing WSEs
- Improve students' confidence and accuracy in identification of correct side
- Evaluate the efficacy of the implemented changes

Method

Online questionnaires were used to gather data regarding the frequency of WSEs experienced by students (see QR code), and the experiences/concerns of clinicians related to student WSEs. Data analysis identified potential factors contributing to WSEs, which influenced the subsequent interventions.



The interventions involved the development of educational posters for the permanent and primary dentitions, highlighting commonly used dental notation systems (see Figures 1 and 2). These posters were displayed throughout Dundee Dental Hospital and Outreach Clinics across NHS Tayside.

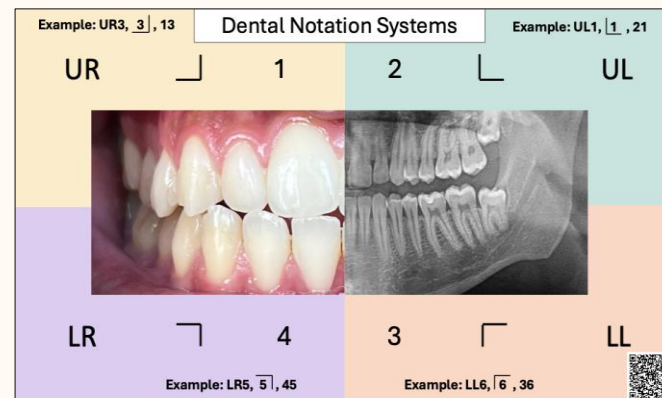


Figure 1: Poster – Dental Notation Systems (Permanent Dentition)

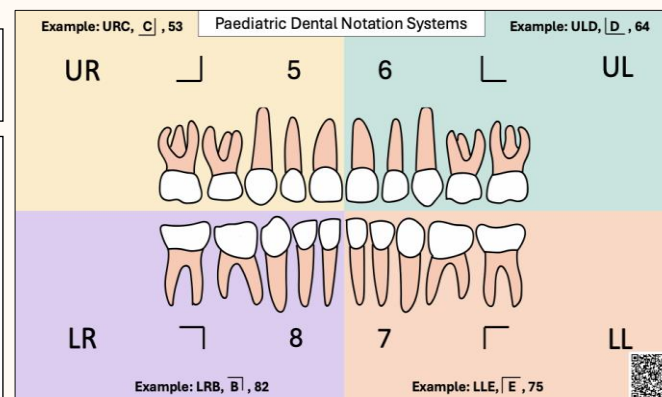


Figure 2: Poster – Dental Notation Systems (Primary Dentition)

Results

96% of students found the dental notation posters to be helpful

Frequency of Poster Use

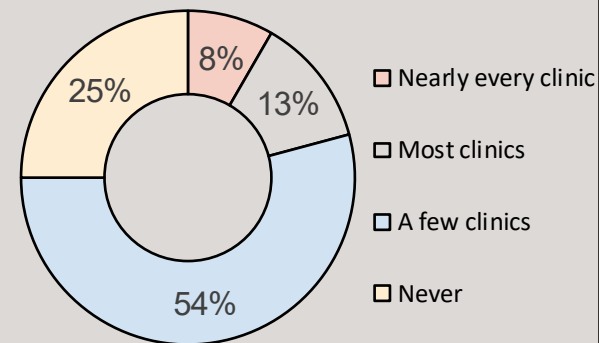


Figure 3: Pie chart depicting frequency of intervention use

Confidence in Dental Notation Types

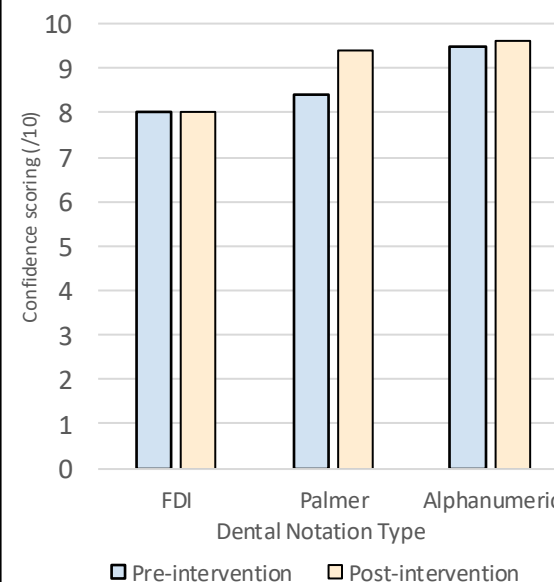


Figure 4: Vertical bar chart depicting effect of intervention on confidence in using different dental notation systems

Discussion/Conclusions

The findings from this QIP suggest that WSEs remain an important patient safety consideration within undergraduate dental clinics. Prior to the intervention, 38% of students reported having confused left and right when using dental notation systems.

Following the introduction of the educational posters shown in Figures 1 and 2, students reported improved confidence in distinguishing left from right and applying dental notation correctly. The value of the intervention is reflected in the results, with 96% of students reporting that the posters were helpful. Additionally, 75% of students reported referring to the posters during clinical sessions (Figure 3)

72% of students reported better differentiation between left and right post-intervention. The greatest improvement was seen in Palmer notation, increasing from 8.4/10 to 9.4/10 (Figure 4), suggesting this was the system students struggled with most. Overall, simple visual prompts appear to support safer documentation practices. Qualitative feedback was positive: comments revealed that 3rd year students find the posters useful as they begin clinics.

Overall, these findings suggest that simple visual educational tools placed within the clinical environment can reinforce learning, support correct documentation practices, and potentially reduce the risk of WSEs.

References

1. Dargue, A., Fyfe, E., French, K., Ali, K., Bailey, E., Bell, A., Bolt, R., Bulsara, Y., Carey, J., Emanuel, C., Green, R., Khawaja, N., Kushnerev, E., Patel, N., Shepherd, S., Smart, B., Smyth, J., Taylor, K., & Varma, D. (2020) 'The impact of wrong-site surgery on dental undergraduate teaching: a survey of UK dental schools', European Journal of Dental Education, . Available at: 10.1111/eje.12645