

Other journals in brief

A selection of abstracts of clinically relevant papers from other journals.
The abstracts on this page have been chosen and edited by Paul Hellyer.

Quantifying workforce need

Ghotane S G, Don-Davis P, Kamara D, Harper P R, Challacombe S J, Gallagher J E. Needs-led human resource planning for Sierra Leone in support of oral health. *Hum Resour Health* 2021; **19**: 106.

Dentists may be irrelevant

Sierra Leone's (SL) healthcare system has been weakened by civil war, the Ebola virus outbreak and natural disasters. With a population of 7.5 million people, it has ten dentists and ten dental care professionals (therapists, assistants and oral health promoters), most of whom are based in the capital, Freetown. Some oral healthcare may be provided by non-dental personnel (NDPs) – for instance, rural Community Health Officers (n = 566) and Community Health Workers (n = 13,000) – but their input is thought to be minimal.

A 2017 dental health survey of children found that only 6% of 15-year-olds had no signs of dental caries, but 17% required extractions and 69% required restorations. Of six-year-olds, 38% had evidence of decay into dentine in at least two teeth. Almost 80,000 teeth were predicted to need extraction. Using these data and three different levels of service provision, this study attempted to predict the human resources needed to provide oral healthcare for the children of SL, utilising the skills of extended duties dental therapists (DTs) and NDPs.

The three following levels of care were explored:

- 1) Conventional care (CC) – prevention, restorations and extractions
- 2) Surgical and preventive (SP) – extractions and prevention only
- 3) Prevention (P) – prevention and oral health promotion only.

Estimates of the time needed to carry out each item of treatment were made and used to calculate the workforce needed to provide care under each scenario. For CC, 291,157 clinical hours would be required to treat the 15-year-old population, needing 169 DTs; 228,977 hours for 12-year-olds (133 DTs); and 323,663 hours for six-year-olds (188 DTs). On average, 163 DTs would be required per year group. If CC were extended to the whole population, then it is estimated that between 5,565 and 6,870 DTs would be required, although this number could be reduced with increased use of NDPs. In the SP scenario, between 39 and 54 DTs would be needed per year group and 1,400 to 2,000 for the whole population. With P only, an average of 27 DTs per year group would be required (and 1,028 DTs for the whole population). Alternatively, a large increase in the numbers of NDPs could be postulated.

The suggested DT-to-SL population ratio for CC (1:1,154) is not dissimilar to that of high-income countries (Americas 1:1,440, Europe 1:2,013). The authors conclude that the gap between the current dental workforce in SL and the oral health needs of the population is stark, and requires urgent action.

<https://doi.org/10.1038/s41415-021-3518-6>

Quantifying smiles

Londono J, Ghasemi S, Lawand G, Dashti M. Evaluation of the golden proportion in the natural dentition: a systematic review and meta-analysis. *J Prosthet Dent* 2021; doi: 10.1016/j.prosdent.2021.07.020. Online ahead of print.

Golden proportions, means and percentages may be irrelevant

The assessment of facial aesthetics is an important element in diagnosis and treatment planning in restorative dentistry. 'Smile design' are current dental buzzwords, and without doubt, an attractive smile can improve self-confidence. Despite the fact that beauty is in the eye of the beholder and extremely subjective, there have been frequent attempts to define perfect tooth and facial ratios mathematically. Hopefully, outcomes may then be enhanced and misunderstandings alleviated by the application of a standard formula.

The Golden Proportion (1:1.618, denoted by the Greek letter *phi*) was first mooted as being relevant to tooth relationships in the 1970s. It was proposed that the upper lateral incisor should be 0.618 of the width of the neighbouring central incisor and also 0.618 of the visible width of the neighbouring canine. Others have suggested a 'recurring (a)esthetic dental proportion' (RED), stating that the reduction in visible width of the teeth remains constant from the midline distally. The golden mean or golden percentage has also been proposed in which, within the inter-canine width, the central incisors occupy 50%, the lateral incisors 30% and the canines 20%. Variations in these ratios may be related to ethnicity and sex, but the evidence is conflicting. Methods of measurement of clinical dimensions have included computer imaging, casts and 'intra-oral assessments'. The authors suggest that there is no evidence for the dominance of the Golden Proportion in the natural dentition and they carried out a systematic review of the literature.

Of the populations studied, the Golden Proportion was not common and was not found in the natural dentition of the majority of individuals with an aesthetically pleasing smile. The Golden Proportion is thus irrelevant. If the ratio is not used in treatment planning, then 'patients will not have visible abnormalities in their prosthesis'. Similarly, the study did not find a relationship between inter-canine distance and other parameters. Although the tooth width ratio of the lateral incisor to the central incisor did not differ between men and women, the study found that the tooth width ratio of the canine to the lateral incisor was larger in men than women.

Proportions need to be chosen which are harmonious with the face, and complex cultural and ethnic preferences need to be considered when designing smiles. Studies on the factors which determine an aesthetically pleasing smile are lacking. Measurements may be important but should only be used as a preliminary guide. If a pleasing smile is to be quantified to a number, then further studies are required, which take into account ethnic and cultural differences.

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