

This short briefing aims to summarise the evidence of the association between childhood obesity and oral health and the current provision of fluoride varnishing in dental practices across Herefordshire.

The relationship between oral health and childhood obesity

Obesity and dental health are two of the most prevalent health conditions affecting children, with national data showing that 10.1% of reception age children were obese in 2021/2022¹, and 29.3% of 5 year olds having enamel or dental caries in 2022². A risk factor for both dental caries and obesity is the consumption of free sugars³.

The Scientific Advisory Committee on Nutrition (SACN) found that higher consumption of free sugars is associated with a greater risk of dental caries, and also leads to increased total energy intake. Furthermore, both obesity and dental caries are strongly associated with deprivation. However despite these common risk factors the link remains unclear⁴.

A systematic review by Hayden et al⁵ found that children who were obese had a higher amount of dental caries compared to non-obese children. National has data found a weak to moderate correlation between increasing obesity and increasing dental caries prevalence for those aged 5 years³. However it is unknown whether this relationship exists in older children. Although these studies do suggest a weak relationship between oral health and obesity. One study found a u-shaped association rather than a linear one whereby increased dental caries were associated with both high and low body mass index, compared to children of a healthy weight⁶. It has been suggested that this non-linear association may be the reason behind inconsistent findings in previous research.

One study by the University of Birmingham⁷ found a linear association between obesity and dental caries. However this association disappeared once accounting for the effect of deprivation. The study found that obesity was more strongly related to the prevalence of dental caries in the least deprived areas, with little association in the more deprived areas. This finding has important implications as taking a population approach to address these issues may have more impact on the least deprived communities, potentially widening health inequalities.

In summary, there is some evidence for an association between dental caries and childhood obesity, although there does not appear to be a strong correlation from studies carried out to date. One reason for this may be that although there is the common risk factors of sugar consumption and socioeconomic deprivation, there are many other risk factors which increase the risk of obesity and dental caries. For example physical activity levels and social media play a role in obesity levels, whereas factors such as fluoride exposure affects oral health.

¹ [Obesity statistics - House of Commons Library \(parliament.uk\)](#)

² [National Dental Epidemiology Programme \(NDEP\) for England: oral health survey of 5 year old children 2022 - GOV.UK \(www.gov.uk\)](#)

³ [Caries obesity Evidence SummaryOCT2015FINAL.pdf \(publishing.service.gov.uk\)](#)

⁴ [Childhood obesity and dental caries: an ecological investigation of the shape and moderators of the association | BMC Oral Health | Full Text \(biomedcentral.com\)](#)

⁵ [Obesity and dental caries in children: a systematic review and meta-analysis - PubMed \(nih.gov\)](#)

⁶ [Body mass index and dental caries in children and adolescents: a systematic review of literature published 2004 to 2011 - PubMed \(nih.gov\)](#)

⁷ [Childhood obesity and dental caries: an ecological investigation of the shape and moderators of the association \(bham.ac.uk\)](#)

Current guidance and accessibility of fluoride varnishing in dental practices

Fluoride varnish can be applied to both baby teeth and adult teeth by a dentist. The process involves painting a varnish containing high levels of fluoride onto the surface of the tooth twice a year to prevent decay. It works by strengthening tooth enamel, making it more resistant to decay. Its use is strongly recommended for children and adults who are at higher risk of tooth decay, such as older people.ⁱ

In practice, dentists and their teams are required to follow advice and guidance from the Delivering Better Oral Health Toolkit. This document states that all children from age 3 to 17 should have Fluoride Varnish applied to their teeth twice a year when they go for dental check-ups. Application of Fluoride Varnish falls under mandatory services under the General Dental Services (GDS) contracts.

It is unclear on the number of dental practices across Herefordshire that are applying fluoride varnishing in line with national guidance. At the last Oral Health Improvement Board it was agreed that an audit would be undertaken to gather local information which would enable us to compare to national rates captured by the NHS Business Services Authority (BSA).

There is little information available on how well fluoride varnishing is being publicised and further work is needed to establish this. The BSA provide evidence and guidance on how practices can promote fluoride varnishing.

ⁱ [Fluoride - NHS \(www.nhs.uk\)](http://www.nhs.uk)