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490 **Association between optimally fluoridated water and tooth-specific fluorosis severity.** SA Griffin*, ED Beltran, SA Lockwood,. Surveillance, Investigation and Research Branch, Division of Oral Health, CDC, US.

The economic cost of dental fluorosis depends upon its severity and which teeth are affected. This study investigated the association between optimally fluoridated water and very mild/mild (VMF) and moderate/severe (MSF) fluorosis in each of the 28 permanent teeth. The study sample included children from the 1986/87 National Survey of US School-children (n=7362), aged 7-17 who were not exposed to fluoride drops or tablets, and who had a continuous single residence with fluoridation status consistent with the fluoride content of a school water sample. The school sample was used to measure water fluoridation concentration at 4 levels: none (ppm<=0.3); low (0.3<ppm<0.7); optimal (0.7<=ppm<=1.2); and high (ppm>1.2). Polychotomous regression examined the association between tooth-specific fluorosis severity (none/questionable; VMF; and MSF) and age and water fluoridation exposure. The marginal probability (change in probability for exposure to optimally fluoridated water) of VMF was significant in all teeth ($p<0.05$) and was lowest in the incisors (0.15-0.17) and highest in the mandibular second bicuspids (0.29-0.30). The marginal probability of MSF was significant ($p<0.05$) in maxillary posterior teeth (0.01-0.04) and mandibular cuspids and bicuspids (0.01-0.03). Exposure to optimally fluoridated water is associated with increased risk of VMF in all teeth and a small increased risk of MSF in the posterior teeth and mandibular cuspids. To the extent that MSF is an aesthetic condition, the burden of disease will be lower if it affects primarily posterior teeth.