# AMALGAMS

## Funding affects choice of filling material



### BACKGROUND

Tooth restoration is the mainstay of dentists' daily work and includes the excision of caries and obturation of the cavity preparation with a filling material. Traditionally, the primary dental care services in the United Kingdom funded by the National Health Service (NHS) rely heavily on dental amalgam as this filling material. However, a recent international agreement made the commitment to phase down the use of dental amalgam. Amalgam is the most popular, least expensive, and most readily placed filling material in the NHS-funded primary dental care services. In contrast, alternative tooth-colored restorative filling materials are more costly, require more time for placement, and may have increased failure rates. These alternatives do permit a minimum intervention approach, however. Many UK dental practitioners may not have been trained in the use of composites and other alternative materials, but are skilled in the use of amalgam. A questionnaire was distributed to dentists in primary dental care in Wales to determine their use of amalgam versus alternative materials.

### METHODS

The questionnaires were given to 667 dentists, with 270 (40.4%) providing usable responses. The questions sought to determine the current use of amalgam and amalgam-alternative materials as well as the attitudes, confidence, and training needs of dentists with regard to the placement of resin composite or amalgam. A number of specific scenarios were described, with practitioners asked to indicate how they would approach each situation.

### RESULTS

#### Demographics

Eighty-one percent of the practitioners graduated from UK dental schools, 16% from schools in Europe, and 3% from schools outside the European Union. On average 71% of patients received treatment funded by the NHS, 15% received private treatment, and 14% had another insurance plan.

#### Training

Seventy-four percent said they had not received didactic training in the placement of posterior resin composites. Sixty-eight had not received clinical training in these materials. Sixteen percent had taken CPD courses on posterior resin composites after graduation.

#### Amalgam

Sixty-five percent had some knowledge about the phase-down of amalgam, and 32% agreed it was a good idea. Fifty-six percent believed the phase down of amalgam would have a major impact on their practice, but 24% felt the phase down was not a concern.

#### Restorative materials for posterior teeth

Respondents were asked to rank their choice of restorative materials in various scenarios. For each scenario, the top 3 choices were reported.

For a restoration in the primary dentition, the top 3 choices in order of preference were glass ionomer, amalgam, and resin composite. For restorations in the permanent dentition of patients age 17 years or younger, the top 3 choices were resin composite, amalgam, and glass ionomer. When the permanent dentition of patients 18 to 59 years was being restored, the top 3 choices were amalgam, resin composite, and glass ionomer. Finally when patients were age 60 years or older, the restoration materials selected were amalgam, resin composite, and glass ionomer.

#### Attitudes

More than 42% of the respondents believed their patients experienced less postoperative sensitivity with amalgam compared to posterior resin composites. Patients also were thought to have fewer problems with interdental food packing when amalgams were placed. More than 72% of the respondents believed they were current with the most recent techniques and practices related to the placement of resin composites in posterior restorations.

When asked when the phase down of amalgam should be achieved in relation to the Minamata Treaty, responses varied considerable. About 15% believed it should happen in less than 5 years, over 28% chose 5 to 9 years, just over 25% selected 10 to 19 years, nearly 8% selected 20 to 29 years, and over 23% thought it should stretch out to more than 30 years.

When asked about the time required for various cavity restorations, respondents thought a moderately deep occlusal cavity in an upper premolar would take a mean of 14.9 minutes for amalgam and 22.1 minutes for resin composite. When the cavity was

moderately deep and located on 2 surfaces mesio-occlusally in the lower first permanent molar, the mean response times reported were 19.6 minutes for amalgam and 30.2 minutes for resin composite. The first scenario required an estimated average 1.58 times as long for resin composite compared to amalgam. The second required an estimated 1.67 times as long on average for resin composite rather than amalgam. When asked about the financial implications of these interventions, respondents believed the NHS fees would have to increase by 57.5% to support the use of resin composite rather than amalgam in posterior teeth.

### Techniques

Over half of the respondents reported they would use a total etch approach for restoring cavities that were moderately deep or shallow. The restoration of proximal contours was reported by 94% of the respondents to be accomplished preferentially by the use of circumferential metal matrices, with 58.9% reporting using sectional metal matrices and 45.4% using circumferential clear matrices.

When asked about wedging, 88.4% preferred wooden wedges, 62.3% plastic or flexible wedges, and 33.1% used light transmitting or clear wedges. Etch and rinse adhesive was preferred by 73.4% of subjects; 26.6% used a self-etch system. Just over 36% would use a bulk-fill resin composite for posterior cavities. Of these, 80.5% reported these resin composites offered ease of placement, increased predictability, and less postoperative sensitivity than traditional composites.

The most common light curing units (LCUs) were LEDs, with 95.7% reporting their use. Quartz tungsten halogen units were used by 41.5% and plasma arc units by 6.0%.

## DISCUSSION

Amalgam is still the primary material used to restore posterior teeth in adults whose treatment is funded by the NHS in Wales. The barrier to using more current materials appears to be related more to the funding than to any lack of skill in handling composite resins or other alternative materials.

### Clinical Significance

The Minamata Treaty suggested a phase down of amalgam use in dental practice but has not specified how this will be accomplished. If the reimbursement for services continues to be insufficient to pay for the use of more current materials, it appears that dentists will continue to select amalgams rather than the more costly esthetic materials. If the goal is to truly phase down amalgam use, funding for dental services should be adjusted to ensure that minimally invasive dentistry using composite resins can be the method of choice for posterior restorations.

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# IMMIGRANTS

## Improving oral health for immigrants



## BACKGROUND

By 2060, it's expected that immigrant numbers will have increased from 13% in 2014 to 19% of the US population. As immigrants become more familiar with the cultural norms and behaviors of the United States population, there may also be changes in their health behaviors, which may affect their health outcomes. Acculturation tends to have a positive effect on the use of health services in the United States, but negative effects on alcohol use, diet, and hypertension. The acculturation experience can also be accompanied by depression, which can contribute to poor oral health status. Immigrants tend to be at higher risk of developing depression than their US-born counterparts, although longer periods of residency may reduce this risk. Research describing the relationship between acculturation and oral health in immigrant populations independent of the effects of depression is lacking. A study using a large nationally representative sample was done to describe the oral health status of immigrants to the United States, assess any association between acculturation and oral health without the effects of depression, and explore whether the combination of acculturation and depression have an impact on the oral health of immigrants.

## METHODS

### Population data

The data were taken from the 2011-2012 National Health and Nutrition Examination Survey (NHANES 2011-12). This